An Address
ON
WOUND INFECTIONS
AND ON
SOME NEW METHODS FOR THE STUDY OF THE VARIOUS FACTORS WHICH COME INTO CONSIDERATION IN THEIR TREATMENT.

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(*Continued from p. 792.*)

WE may, with such new knowledge as we have won from the experimental methods I have described, now revert to the consideration of those three methods of combating wound infections which were enumerated earlier in this discourse. It will be remembered that these were: *treatment by antiseptics; treatment by physiological methods;* and *vaccine-therapy.* We will take them one by one.

TREATMENT BY ANTISEPTICS.

If we were to adopt the Socratic method, and were to inquire of the first man whom we might find engaged in washing out a wound what were the grounds for his confidence in the utility of his procedure, he would probably make some such answer as the following: "I know that the antiseptics which I am bringing into application are agents which directly kill and inhibit the growth of microbes. There is no other agency known which would be competent to do the bactericidal work that these antiseptics do in the wound. And, again, it is everybody's knowledge that Lister, by bringing in his antiseptic treatment, extirpated those septic infections of wounds, which before the advent of his method devastated the surgical wards of every hospital."

And if we were to push our question further, and to ask of the surgeon what was the particular end and object to which his procedures were directed—whether it was the sterilisation of the wound; or the killing off of a large proportion of the microbes; or the imposition of a check upon the survivors; and if we were further to ask, whether the particular antiseptic in the particular strength in which he was employing it could be relied upon to achieve the end in view; we should probably be told that, supposing that the antiseptic did not completely sterilise the wound, it would inevitably kill a large number of microbes; and it would probably also inhibit the growth of any survivors. And, inasmuch as one or other of these objects would be sure to be achieved, there could be no question but that advantage would be accruing to the patient.

We should, in short, get an answer which proceeded upon at least one erroneous premiss, and which betrayed loose and inconsequent thinking, and a reluctance to come to close quarters with the question. But the reasonings of the larger part of humanity are neither better nor worse than this, and it is not for that less necessary to take them into very serious account, and to do our best to correct them when they mislead.

Let us begin, since Lister is the fount and origin of all antiseptic treatment, with what relates to his work. Lister's name is associated with two discoveries. The *first* of these is the discovery that we can, by an *anticipative prophylactic application*, hold off microbes from surgical wounds, and so avoid wound infections. The *second* is that in cases of compound fracture where the wound is already infected we can still, by what I may perhaps call a *retrospective prophylactic application of antiseptics*, stave off the wound infection. The first of these is a discovery of absolutely universal application, and it will carry the name of Lister down to remotest posterity. The second discovery has reference only to a particular kind of traumatic wound, and shows that prophylactic applications of antiseptics can be usefully employed also in connexion with some wounds which are already infected.

It is clear that neither of these discoveries finds any direct application either in connexion with prophylaxis or the treatment of the wound infections which occur in projectile wounds.

What it is necessary to say on the possibility of preventing septic infection by sterilising projectile wounds can be said in a very few words. The principle that microbes can be held off from wounds by an antecedent employment of antiseptics has no application to projectile wounds, for these are infected before they are seen by the surgeon. Nor, again, is the Listerian discovery that prophylactic applications of antiseptics can in the ordinary compound fractures of civil life stave off wound infection, a discovery which relates to conditions such as obtain in projectile wounds. Retrospective, or as we may also call them *ex post facto*, prophylactic applications of antiseptics will give good results only when the microbes are accessible. In the case of the ordinary compound fracture of civil life this is the case. For here the microbes lie exposed on the external surface of the bone which has been thrust through the skin. The contrary holds for projectile wounds. Here the microbes are inaccessible. They have been carried down deep into the tissues, and lie on the inner face of a torn and ragged track, and that track is blocked by blood clot and hernia of muscle.

It is clear that the utmost that prophylactic applications of an antiseptic could under such conditions achieve would be an incomplete sterilisation. And an incomplete sterilisation would leave us with a wound infection, and in a few days with as bad an infection as before. Coming now to actually subsisting wound infections, we see that exactly the same thing would apply. We are not entitled to infer from the fact that the method of Lister is within its limitations an effective method of prophylaxis, that it is also an effective method of treatment. That is clearly a question which must be determined as an independent issue.

When we approach the question in this way we see that the first point which has to be determined is: What particular concentration of each particular antiseptic will, when applied to the wound, exert there a bactericidal action on the microbes? In connexion with this we must beware of the fallacy of taking the figures for an antiseptic acting on microbes in watery suspension and seeing in these an all-round formula of efficacy for that particular antiseptic.

A formula of efficacy of this sort might, of course, find a useful application where the sterilisation of skin surfaces and instruments was concerned. For

here the antiseptic comes into operation on exposed microbes in full strength. In practically every other case the conditions would be entirely different. The antiseptic would have to come into operation in a medium which quenches its antibacterial action.

I have recently, in dealing with internal medication by antiseptics in pneumonia, brought forward [1] an array of experiments which show that the quenching of the antibacterial power of antiseptics by the medium in which these come into application, is the essentially important factor to be considered in connexion with their therapeutic use. In particular I have shown in connexion with drugs like creosote and guaiacol that doses which would almost certainly be lethal would have to be administered before these could come into operation in blood.

The same sort of thing holds true of pus. But here the situation will be different in two respects. It will be different in respect that, as compared with serum, pus exerts a greater quenching effect upon antiseptics. It is, if I may put it so, more *antisepticotropic*. This will prevent us taking the antisepticotropic values for the serum and applying them to the pus in the wound. Again, the conditions under which an antiseptic will come into application in a wound will contrast with those which come into application in internal medication. In connexion with internal medication we have to take into consideration the quenching influence which would be exerted by the totality of blood. In applying antiseptics to the wound it lies with us to make the conditions much more favourable to the antiseptic. We can, if it is a question of washing out a wound with antiseptics, make the relation of antiseptics to pus anything that we please. And where it is a question of leaving an antiseptic behind in the wound for the purpose of inhibiting growth, we can also, within limits, lay down our own conditions, and make provisions which will prevent the conditions becoming too unfavourable to the antiseptic.

If there are, in the published literature on antiseptics, any papers dealing with the investigation of the efficacy of antiseptics from this point of view, they have escaped my observation; I have, accordingly, in conjunction with my fellow-workers, Dr. W. Parry-Morgan and Dr. A. Fleming, set to work to supply the missing data. To find out what concentrations of antiseptic ought to be brought into operation in washing out a wound, we took 9 volumes of antiseptic to 1 of pus. To determine what inhibitory effect would be exerted by an antiseptic left behind in a wound, we took one portion of the antiseptic to—as the case might be—2 or 4 volumes of pus. It will be seen that by this plan of operation we conduct our experiments directly on the microbes and pus furnished by the wound: in other words, instead of dealing with any abstract question, we deal with the concrete question which presents itself in the particular wound infection which happens to lie before us.

The general results obtained in this investigation will be separately set forth. At the moment it will suffice to call attention to the fact that when employing 9 volumes of the antiseptic solution to 1 of pus from the infected wound, and leaving the antiseptic in application for ten minutes, a strength of 1 in 40 of carbolic acid, and strengths of 1 in 400 of biniodide of mercury, and 1 in 500 of tincture of iodine all failed to sterilise. Again, in experiments on inhibition, 1 volume of a 1 in 30 dilution of lysol, and 1 in 400 of tincture of iodine, and 1 in 200 solution of biniodide of mercury did not avail to prevent bacterial growth in 4 volumes of pus. But I must not delay over the question as to what will, with a particular antiseptic, be the particular concentration required for the attainment of a particular antibacterial effect. Let us revert to our task of trying to bring the whole question of the employment of antiseptics in wounds into some sort of proper perspective. It will help us to do this if we consider the following questions:—

(1) *Is there any reasonable prospect of sterilising the wound by an application of antiseptics?*

So far as the pus which is brought into intimate contact with the antiseptic is concerned, it would probably be possible to sterilise this by methods which will elsewhere be explained. But we have in the wound not only pus which can be reached by our antiseptic washings, but also pus which is locked up out of reach in blind alleys and pockets. And, again, we have in the infected wound not only a microbic infection of discharges, but also a microbic infection of the granulation tissue. And assuredly the really formidable difficulty in connexion with the sterilisation of the wound is that of getting sufficient penetrating power to deal with these sheltered microbes.

Now the ordinary antiseptics which we employ in wounds have as good as no penetrative power, and though it is possible to undertake comparative experiments, and, as an interesting academic exercise, to determine for a series of antiseptics how far their antibacterial influence may extend in agar or any other artificial medium, academic exercises like this ought not to divert our attention from the fact that there is not, among all the competing antiseptics, one which can penetrate into and sterilise the walls of an infected wound. In fact, if it were ever to come about that an antiseptic sterilised heavily infected wounds, that would be a matter to announce in all the evening and morning newspapers. Nor is it matter for surprise that antiseptics should not be able to penetrate into granulation tissue. Let us call to mind the fact that this is composed of continuous layers of cells; that the cell wall is a quasi-impenetrable membrane; further, that we have in the granulation tissue a very developed system of capillaries, capable of absorbing and carrying away any antiseptic that might penetrate; and, lastly, that we have also in the granulation tissue an outflowing lymph current. Having realised the inefficacy of antiseptics for the purpose of sterilising an infected wound, let us now pass to the next question. It may be formulated thus:—

(2) *Is there in point of fact any ground for the confident belief that a reduction in the number of microbes such as would be obtained by washing out of the wound with antiseptics must carry advantage to the patient?*

We have realised that it is a firmly established conviction that every procedure which leaves behind in the wound fewer microbes would, like a smaller sowing of seed, sensibly reduce the ultimate crop, and so sensibly advantage the patient. The bacteriologist does not see in this a matter of course. He thinks not only of the sowing, but of the

[1] Drugs and Vaccines in Pneumonia. Constable, 1914.

soil. He reflects that when we are dealing with a microbe which reproduces itself rapidly on a particular medium—let us say the typhoid bacillus in peptone broth—the lightness or heaviness of the sowing would after the lapse of a comparatively short time hardly come into account again in the case of a microbe which multiplied itself very slowly in a particular medium the sowing would, unless the incubation period were indefinitely extended, make very little difference to the result. Finally, where a microbe grows very slowly on a particular medium, but very rapidly as soon as this undergoes transformation, the population of microbes found in the culture would clearly depend less on the number implanted than on the time taken to convert the nutrient substratum from a bad into a good cultivation medium. It is, in the light of what has gone before, quite easy to see the application of this to the wound. Whether few or many serophytic microbes are left behind in the wound, will make comparatively little difference to the number found in the uncorrupted lymph. For serophytes will, unless constantly kept down by phagocytosis, multiply rapidly. Again, in the same way, whether few or many sero-saprophytes are left behind, would not make much difference to the number found in the uncorrupted discharge. For sero-saprophytes grow very badly on this medium. But the factor which will readily exercise a determining influence on the result will be the rate at which the lymph becomes corrupted. And the practical conclusion emerges that what is really difficult in dealing with an infected wound is not to thin out the microbes; but afterwards to keep down their numbers. We are here carried along by our train of thought to the "dressing of the wound"; and in connexion with this we may put the following question to ourselves:—

(3) *What conclusions can be drawn from the fact that frequent redressings are in connexion with the treatment of infected wounds by antiseptics indispensable?*

This is one of those questions of which we realise the fundamental significance, as soon as they formulate themselves in the mind. When our treatment has miscarried, and the wound has filled up again with pus, and this has become tryptic and has begun to digest the granulations and skin surfaces with which it comes into contact, and when bacterial poisons are being absorbed into the system, we are compelled to redress the wound. In other words, when we have been falling away we have to try to get back to the position which was reached at the previous dressing. And let us in this connexion note that it is one thing to be able when unsuccessful to fall back upon dressing, and to make of this a point of departure for trying a new way; and quite another thing to accept dressing as a necessary and inevitable element in our programme of treatment, and then not even to propose to make it a point of departure for a new therapeutic effort, but calmly to contemplate an everlastingly repeated setting out into a blind alley, and an everlastingly repeated return to our point from which we started. If grace had been given to us to see things with unsophisticated vision, it would be clear to us that to make constant redressing an integral and indispensable element in our programme of treatment is really as much of a confession of failure in the case of an infected wound as in a surgical operation. It is equivalent to saying that our method of treatment leaves the wound in a condition which makes healing impossible. And finally this leads on directly to the question—

(4) *How are we, in view of all the above, to account for confidence in the utility of the antiseptic method of treatment?*

We may here begin by bringing out that in all probability the antiseptic method, considered as a method for preventing the importation of foreign germs into the wound, has deserved everything in the way of praise that may have been said of it. For it is no doubt owing to the fact that antiseptic solutions have everywhere been employed for washing out the wounds, that there have not developed in the military hospitals in this war any of those graver forms of infection which in pre-Listerian days never failed to put in an appearance. When, however, we pass from prophylaxis to treatment; and from the consideration of the effects in connexion with the patients, taken as an aggregate, to the effects which manifest themselves in the individual who is under treatment; it is then that we come face to face with the problem as to how it has come about that the obvious non-success of the antiseptic treatment is not generally appreciated. It seems to me that this also must be put down to sophisticated vision and to the effects of education. We must remember that the practitioner of to-day has been educated up to expect to find, within a few hours after washing out an infected wound with antiseptic, as much pus and as many microbes as when he last came to dress it.

We now pass to

TREATMENT BY PHYSIOLOGICAL METHODS.

We shall do well to begin by putting quite away from us the current preconception that to abandon antiseptics would be equivalent to abandoning the programme of killing microbes in the wound. A moment's reflection will show that nature has from the very beginning of things been bringing to bear her own antibacterial agents on infecting microbes; and that we have in antiseptics merely a recent substitute for these. Moreover, the surgeon, in treating wounds, has all along, though not with conscious aim, been bringing the antibacterial agencies of the body to bear on the infecting microbes.

In treating a wound infection by physiological methods we have therefore only to follow the surgeon's lead. But we may hope, as we go along, to improve upon his methods. For we shall fix our attention on the guiding principle which he has missed.

The chief points which the surgeon has insisted upon in connexion with the treatment of infected wounds and tissues are the following.—Where there is an abscess sac, or a closed cavity containing pus, this must be laid open; and an outlet for the discharge must be provided—if possible in the most dependent part. Where an infection has spread diffusely in the tissues free incisions must be made; and where these incisions pass through infiltrated tissues they must be carried from sound skin to sound skin, and all the way down to the healthy structures underneath; and here hot fomentations should afterwards be applied. Lastly—and this is one of the teachings of the present war—when amputating through infected tissues unrestricted drainage must be provided: either by leaving the wound unsutured, or (in cases of gas phlegmon) by reverting to the mediæval method reintroduced by Fitzmaurice-Kelly of cutting the

limb squarely across at the same level and dispensing entirely with flaps.[2]

Let me now try to show you that all these procedures—and it will not be necessary to consider them all in detail—will in the ordinary case bring the antibacterial agencies of the body into play. And let me further try to show you that when they fail to do this satisfactorily, they never, even when they accomplish all that the surgeon asks, do any effective good in combating the infection.

I shall begin by considering the rationale of the opening up the abscess sac. The popular explanation accounts for the utility of this procedure by telling us that it provides issue for the infected discharges. But that is quite inadequate. For not only does the operation provide issue for the infected discharges, but when it succeeds it brings about the destruction of the microbes which are embedded in the walls of the abscess sac. In reality it alters the whole situation. In the unopened abscess, the antibacterial agencies of the body are overborne by the mass effect of the infecting microbes. The white blood corpuscles in the abscess sac are paralysed, or killed; and all the antibacterial power of the lymph has gone. In the abscess that has been laid open and emptied, the infected bacteria are overborne by the mass effect exerted by the antibacterial agencies of the body. Fresh antibacterial lymph is streaming in through the walls; and phagocytically active leucocytes are emigrating into the empty cavity. But for all that the infecting bacteria are overborne, the infection is not necessarily extinguished. The laying open of the abscess does not always put everything right. The mechanical conditions may leave much to be desired. It may be necessary to obtain a larger outpouring of lymph to wash the embedded bacteria out of the walls of the wound, and to prevent them accumulating in the abscess cavity and effluent channel. Again the antibacterial agencies of the body may require to be brought into more effective operation. It may be desirable to bring to bear on the microbes both a greater volume of antibacterial lymph and a larger force of phagocytes. Or it may be proper to repress the emigration of leucocytes so as to prevent any breaking down of these in the wound.

Now the supplementary surgical procedures which were enumerated above all contribute, more or less effectively, to the accomplishment of one or other of these ends.

Drainage-tubes are devices for preventing the accumulation of infected discharges. But they do not really keep down bacterial growth in the walls of the abscess cavity. There ought to flow out from a wound not a pus composed of disintegrated leucocytes and microbes, but a lymph which is inimical to microbes and favourable to phagocytic activity; and things do not begin to clear up in a wound till its effluent runs clear.

Free incisions carried down into infiltrated tissues are intended to furnish an ample outlet. But in reality the dimensions of the outlet do not necessarily correspond to the superficial area of the incisions. In point of fact the effective outlet will in infiltrated tissues correspond only to a small section of that area. For the lymph spaces are blocked with leucocytes and fibrinous exudation. And there will, moreover, ooze out from the cut surfaces a highly coagulable lymph which very quickly seals up any open pores.

[2] THE LANCET, Jan 2nd, 1915, p. 15.

Hot fomentations, in addition to macerating and bringing away the inflammatory exudate, will induce active hyperæmia, and so increase the outflow of lymph.

Leaving operation wounds unsutured and dispensing with flaps will, as already explained, give unrestricted drainage, so far at least as the mechanical conditions are concerned.

We have now arrived at some sort of a general idea as to what would be embraced under the term "Treatment by Physiological Methods," and we have realised that the empirical procedures of the surgeon furnish us with something to work with and to improve upon.

It will be taking a first step to the improvement of these methods if we draw up for ourselves a complete list of desiderata. We shall in setting these out have to bring them into relation with the actual types of wound infection which come up for treatment.

In reality our infected wounds conform, nearly all of them, to one or other of two types. In the *first* type we have an infection of either the unclothed internal surface of the wound, or of the granulation tissue lining it. Examples of this type of infection are furnished (*a*) by recent projectile wounds whose walls are implanted with microbes; (*b*) by suppurating cavities which have just been opened up and evacuated; and (*c*) by old-standing suppurating wounds which have just been washed out and left clean. In our *second* type of wound we have an infection in a dry and infiltrated wall of an infected cavity and in the tissues contiguous to this.

In the former type of wound infection it would be a desideratum to wash the infecting microbes out of the walls of the wound free from microbes by means of a powerful outflowing current of lymph; and it would be desirable in connexion with this lymph that it should carry in with it into the infected cavity whatever force of phagocytes might be required; that it should furnish a favourable medium for, and directly assist, phagocytosis; that it should repress bacterial growth; and that it should not suffer any sensible diminution of antitryptic power if, after ineffective phagocytosis, a certain number of leucocytes broke down in it.

In the second type of infection, while everything that applies to the first type would apply, it would probably be desirable, as special measures, to repress further emigration of leucocytes, and to render the lymph incoagulable so as to prevent any stanching of the lymph outflow.

For the complete realisation of these desiderata we should require to have at disposition an agency for powerfully increasing the outflow of lymph. (I propose almost immediately to show that we have this at disposal.) Further, it would probably be necessary to have at disposition—but till further research has been carried out it is impossible to speak with certainty on this subject—means for promoting and repressing emigration. And lastly it would almost certainly be necessary to be in a position to increase at need not only the antibacterial power with respect to the infecting microbes, but also its general power of repressing the growth of sero-saprophytes. This, however, will come up for consideration in connexion with treatment by vaccine-therapy.

As just announced, I pass now to consider what agents we have at disposal for increasing the outflow of lymph. In this connexion we have already seen that the lymph flow from the wound can be increased by the application of hot fomentations.

It can be increased also by introducing ether into the wound —the ether, like the hot fomentations, no doubt acting by inducing active hyperæmia.

But I think that better than either of these, because it is more continuous in its action, and because it renders the lymph incoagulable, and also perhaps because it represses emigration, is the lymphagogic application which I have been recommending now these many years back. This consists of a 5 per cent. solution of common salt, mixed with ½ per cent. of citrate of soda. This brings into play osmotic forces, and "draws" the lymph out of the walls of the wound by a *vis a fronte*. The citrate of soda is added with a view to decalcify and render incoagulable the outflowing lymph.

I may perhaps be allowed to say with regard to this lymphagogic solution, or rather with regard to the simple 5 per cent. salt solution which I find works in most cases equally well, that it has in this war proved itself pre-eminently useful. When brought into application upon a dry and infiltrated wound, or a wound that is foul and covered with slough, it resolves the induration, brings back moisture to the surfaces, and cleans up the wound in a way that no other agent does. Applied in gaseous gangrene in the form of a wet dressing to incisions which have been carried down into infected tissues it causes lymph to pour out of the wounds and arrests the spread of the infection. And again, applied in gaseous gangrene to an amputated stump in cases where it has been necessary to leave infected tissues behind, it reverses the lymph stream and draws out the infected lymph—saving life in almost desperate conditions.

What would be the proper culmination and end to the treatment of wound infections by physiological methods?

We have now arrived at a point when it will be proper to keep our eyes somewhat less closely upon the ground, and to ask ourselves what kind of a coping-stone is to be placed upon our edifice of physiological treatment. For it is clearly unthinkable in connexion with such treatment carried out on scientific lines that it should conduct to nothing better, than to that everlasting dressing and redressing of the wound, into which all antiseptic treatment seems to run out. I am convinced that, when once we shall have learned exactly how to regulate the outflow of lymph, and to control emigration and phagocytosis, it will be practical policy to make an end once for all to a wound infection, and to close up the wound.

Even as we stand at present that seems to me to be to some extent a realisable ideal. While it would lead too far to follow up this question in detail, it will perhaps not be amiss to direct attention to the following points.

It will always and ever be impossible to sterilise a wound within the space of a few minutes. To wash out microbes from the granulation tissue will always take time. And we shall always have to allow time for the leucocyte to find the microbe; and for phagocytosis; and for the digestion of the microbe in the interior of the phagocyte. And again and above all, we shall always have to allow a very large margin of time for the miscarrying of lymph lavage, emigration, phagocytosis, and the intracellular destruction of the microbes, and for the necessary going back over all these processes.

In view of this it will be clear that when we embark upon physiological treatment we ought to carry it out unremittingly. And our treatment will perhaps best take the form of continuous irrigation or continuous baths.

When by these means we think we have rendered our wound sterile or nearly sterile we must in closing up the wound, or giving it an opportunity of healing up under a scab, always proceed by the method of trial and error and provide for the possibility of the microbes again taking the upper hand.

(*To be continued.*)

THE SCOTOMA OF MIGRAINE.

BY F. W. EDRIDGE-GREEN, M.D. DURH., F.R.C.S. ENG.

IT is always interesting to show that some pathological phenomenon is explained by some simple disturbance of a physiological process. I have shown that the foveal region of the retina, which contains only cones, is sensitised from the peripheral portions containing rods. A simple illustration of this will suffice. If on awaking in the morning the eyes be directed to a white ceiling, the central portion of the field of vision appears as a black spot, and light appears to invade this spot from without inwards. On closing the eye again a bluish-violet circle appears at the periphery or middle of the field of vision, contracts, and then, after breaking up into a star-shaped figure and becoming brighter, disappears, to be followed by another contracting circle. If the eye be opened when the star figure has formed in the centre it will appear as a bright rose-coloured star, much brighter than any other part of the field of vision. If, however, we wait till the star has broken up and disappeared before opening the eye it will be found that only a black spot is seen in the centre. I regard these circles as due to the circulation of photo-chemical fluid sensitised by the visual purple over the ends of the cones. It will be seen, therefore, that if there be any disturbance of the circulation of the eye so that this flow of photo-chemical fluid to the fovea be interrupted we should have a central scotoma increasing from within outwards. This is the phenomenon which is experienced in migraine. The varying sensibility of the fovea has always been a puzzle to physiologists. The old view of vision in which the rods and cones are supposed to be directly, or indirectly by means of photo-chemical substances present in them, sensitive to light, is inconceivable. On this view what would be the condition of the cone after light had acted upon it, how would the photo-chemical substances be restored whilst light is still acting on the eye? We know that the cones have no direct blood-supply. There is no evidence that the rods are percipient elements. If, however, we adopt the view that the cones are stimulated by the decomposition of the photo-chemical fluid surrounding them, we have a very simple explanation of vision which accounts for a large number of previously inexplicable facts, as, for instance, that light can impinge upon the fovea without producing any sensation, or that two after-images can change their relative places in the field of vision and become combined into one, the interval between them becoming less and less.

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SOME PHYSICAL DEFECTS MET WITH IN THE RAISING OF AN ARMY.

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THE present crisis has given some of us the opportunity of coming into direct contact with large numbers of men drawn from various social grades and forms of human activity eager to join the ranks and serve their country. As it is more than likely that many men will yet be required for the army my remarks are not altogether uncalled for. As regards recruiting Newcastle and Tyneside have done well. Between 40,000 and 50,000 men have been given to the navy and the army from this district alone. Until the end of December the Northumberland miners had alone contributed 12,059 men; 31·1 per cent. of the men in this district between the ages of 18 and 38 have enlisted.

My own experience of the subjects later to be dealt with has been gained during the raising of the Tyneside Scottish Brigade. With the assistance of a local committee we succeeded in raising four battalions, each of 1100 men, in the short space of 22 days. The recruits have been drawn mostly from the artisan and labouring classes. Only a few of them have been clerks and shop assistants. Most of them have worked in shipyards, ironworks, and coal-mines. When Lord Kitchener invited us to raise one battalion of Tyneside Scottish he gave permission for men to be taken up to the age of 45 years instead of 38. At the time, this extension of the age-period was a concession of some assistance to us in getting men, men who were seasoned and who looked at life more seriously than those of younger years. Unless, however, careful discrimination is made it is a question whether such a concession is an unmixed benefit. Local industries and their effects upon the men must be considered. Many of the industries of Tyneside make heavy demands upon the physique and enduring powers of the men. They differ entirely from the textile industries and some of the occupations of large towns, in so far as while they stimulate development in early manhood they are hard and somewhat exhausting; they tend to cause premature decay, or at least unfitness to undertake hard muscular work in any other direction than that for which their daily work of 20 to 25 years has trained them. These men can go on doing their ordinary work after the age of 45 quite well, but it is another thing to take them to other kind of work which makes new and engrossing demands upon them, since much of the elasticity of their tissues is gone, and with it the readiness to adapt themselves to other conditions of life and labour. The number of men thus rejected as unfit for military purposes is considerable. It is 30 per cent. It was therefore with knowledge of these facts, based upon experience, that I concurred with General Ternan, Brigadier of the Tyneside Scottish, when he suggested that for men about to be *enlisted for foreign service* it would be better to make the maximum age 38 instead of 45. One of the advantages of having older men in a battalion is that in the billets they exercise an influence for good upon the younger men. They steady their juniors but in long-distance marching, 17–20 miles twice a week, and in regular systematic drill the seniors are more apt to break down. Much of the breakdown would be avoided if the training was gradual and not so accelerated. I cannot be too insistent upon this point.

The disparaging remarks I have made in regard to age and fitness only apply to men who have been exposed to hard physical work, for there are many men who either at, or immediately beyond, the age of 45 are just as good physically as, and who can probably endure more than, men of 25, but they have been drawn from work which has not caused such severe physical strain as the occupations I have referred to. This applies, for example, to the men of the "Scottish Horse" (Lord Tullibardine's) and to "Lovat s Scouts," who have been drawn mostly from the agricultural classes. The extended age-limit, therefore, is a concession to be made use of in the case of well-preserved men whose occupations have not aged them, also where men are required for home defence, and who in this country could probably be transported without great difficulty.

It is interesting to see how the previous occupation of the men has helped them as soldiers. Joiners, carpenters, and builders' labourers have been most useful to the brigade in preparing the ground and in erecting the huts in Alnwick Park. Miners, for example, have shown themselves to be extremely capable of making trenches. Military training, however, soon finds out the weak spots in a man's body, and this leads me to speak especially of coal-miners who as a class suffer much from fractures of bone in close proximity to their joints. Miners who have followed their avocation for many years, working for the greater part of the shift in a stooping position, become weak in the knees. They suffer very frequently, too, from displaced cartilage of the knee-joint. Dr. E. Napier Burnett found that the feet of middle-aged colliers—40 to 45 years of age—readily gave way during military training owing to pain and thickening of the metatarso-phalangeal joint of the great toe.

Complaints are numerous all over the country as to the manner in which the medical examination of recruits has been made. There is not the least doubt that the examinations have not been so systematically and carefully carried out as they ought to have been. This may partly have been owing to the great rush of recruits, but allowing for this there have been such glaring physical defects and deformities overlooked by the doctors that clearly only the most cursory medical examination could have been made. There is no excuse for examiners having passed men totally blind in one eye from cataract, men who have lost the index finger of the right hand, who have lost two fingers of the left hand or two toes, who have hernia, hæmorrhoids, large and readily seen varicose veins, who are flat-footed, or who are the subjects of advanced heart or lung disease. Here is an illustration.

A private, aged 30, who had been training in the south of England, consulted me as he had been discharged from the army as being physically unfit. The man could hardly walk across the floor of my consulting room without experiencing great dyspnœa. His feet and legs were swollen. On exposing the chest the apex of the heart could be readily seen and felt beating 2 inches below and external to the left nipple. On auscultation a loud rough systolic murmur could be heard which the merest tyro in medicine could have detected. The cardiac murmur must have been there at the date of examination, for within four weeks after

joining his battalion this man had made his first route march of 14 miles with a 20 minutes' break mid-way. On that occasion it took him all his time to walk into the camp. Shortness of breath developed the same evening or during next day, and in five days afterwards he was discharged as unfit for military service.

This case does not by any means stand alone. In other instances the men had not been stripped sufficiently, otherwise paralysed shoulders and paralysed muscles of arms and forearms would have been detected. The number of men who have been allowed to pass into the army with flat feet and hammer toes is almost incredible.

The object of my remarks is as much as anything to draw the attention of medical examiners to the necessity of exercising greater care than many of them have been doing. Apart from the expense, it lightens the work of future administration. Carelessness on the part of medical examiners has been evident in such a large number of instances that by permitting physically defective men to be attested, fed, uniformed, and drilled, who are obliged to be discharged a few days or weeks after attestation, considerable expense has been incurred to the country, disappointment caused to the rejected men, and through them returning home dissatisfied further recruitment has been made more difficult. It is estimated that the attestation along with the bonus, the clothing, feeding, and subsequent discharge of those unfit for military service has cost the country nearly £2,000,000.

As regards the state of the teeth of recruits, the War Office has made valuable concessions. Bad teeth are so frequently met with among working men that it was clear unless something was done in regard thereto many men otherwise physically fit were being lost to their country's service. Free dental treatment at dental hospitals was a step in the right direction. So far as the Tyneside Scottish battalions are concerned, the arrangement with the hospital worked satisfactorily. The work at the hospital was restricted at first to *extraction*, with or without local anæsthesia as the patient preferred, and to *fillings*. Dentures were subsequently allowed, but these were only given to men of good character and of good physique, men who were likely to appreciate the gift. One drawback to supplying artificial teeth is that if a man at the front is dissatisfied or has a grievance he may throw his dentures away, and, pleading inability to masticate food, he may, when he can ill be spared, have to be sent home.

The importance of testing the eyesight goes without saying, and yet in regard to this there have been several instances of men having been attested with very grave visual defects. Very interesting information has been gained in Newcastle in regard to this subject of eyesight. A large number of our recruits has been drawn from the mining population. It is difficult to give the percentage, but in some of the battalions miners form 60 to 70 per cent. of the men. We were hardly prepared for the large number of cases of nystagmus which developed in the men after they had been in the billets for several days or a few weeks. Sometimes the nystagmus has been of the most pronounced type. There is nothing to indicate that the oscillatory condition of the eyeballs was always present at the primary medical examination. It might have developed as the men passed longer time in the daylight than their work previously allowed them. This, however, cannot be the explanation, otherwise nystagmus would ere this have developed during miners' strikes. So pronounced has been the nystagmus in some of the men, and so deficient their power of vision, that serious accidents have arisen. Many of the men who are the subjects of it have great difficulty in seeing clearly at the time daylight passes into twilight. In one instance a recruit walked into and broke the large plate-glass window of a shop. He did not know that he had reached the window. Where nystagmus has been well developed none of the men have improved rapidly enough under observation and treatment to be retained; they had, therefore, to be dismissed. Where the defect was slight some of the men have been kept for lower forms of administrative work. Nystagmus is a disqualification for military service. The subjects of it cannot even undertake the ordinary physical drills since the rapid movements required, including those of rotation of head and body, aggravate any nystagmus that may be present. Since in many of the men who are affected with it the right eye is worse than the left, the men can only shoot from the left shoulder. Without expressing an opinion as to the disability of associating such men in the trenches and elsewhere with those who fire from the right shoulder, a far more serious aspect of the question relates to sentry duty. As already stated, it is just as evening approaches, when the daylight is fading, that the vision of these men is worst. A sentinel on duty thus affected might, therefore, not through carelessness but disease, endanger not only the lives of the men of a whole battalion but wreck the chances of our troops at a critical moment through not observing the approach of the enemy. I am led to believe that the high percentage of nystagmus met with among North Country coal miners does not equally prevail in those drawn from other parts of the country.

Albuminuria has been found in a small percentage of otherwise apparently healthy recruits after hard physical drill and long route marching.

The small amount of venereal disease among the men of the Tyneside Scottish battalions has been a cause of congratulation. Dr. N. Maclay, who as civil surgeon was in charge for a time of one of the battalions, informs me that it has not been more than 1 to 2 per cent. A similar remark applies to crime. It is only right to say, considering the fact that in Newcastle and district we had a few months ago upwards of 100,000 soldiers suddenly implanted in our midst, that the amount of crime has been extremely small.

As regards inoculation for typhoid fever, the Tyneside Scottish raised no difficulty. Some of the battalions were done to a man without any dissent. At one stage of the proceedings it was thought the preventive measure ran the risk of receiving a check as one of the men died shortly after the inoculation, but fortunately, although the civil medical practitioner who had attended the patient gave a certificate that death was due to (1) typhoid inoculation, (2) pneumonia and heart failure, the necropsy revealed heart disease of long standing, chronic pleurisy, and an alcoholic liver.

Newcastle-upon-Tyne.

ROYAL SOCIETY OF ARTS.—Lectures will be delivered at the Royal Society of Arts, John-street, W.C., on April 26th and May 3rd, 10th, and 17th by Dr. David Somerville, the subject being Foodstuffs. On May 5th Mr. Augustus Vernon Harcourt, D.Sc., F.R.S., will deal with the subjects of Measurement of Efficiency of Domestic Fires and a Simple and Smokeless Grate. The lecture hour on each occasion is 8 P.M.

THE TREATMENT OF GUNSHOT AND SHELL WOUNDS.

WITH SPECIAL REFERENCE TO CARBOLISED GLUCOSE AS A DRESSING.

BY H. BECKWITH WHITEHOUSE, M.S. LOND., F.R.C.S. ENG.,
LATE HUNTERIAN PROFESSOR, ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE character of the wounds received during the present war has given rise to much discussion and criticism of the most appropriate treatment to be adopted. During the early months of the campaign, before the pathology underlying the various lesions had been investigated, treatment was conducted upon established and previously conceived ideas. It was soon noted that such methods had very little practical value in combating the severe sepsis supervening upon trauma produced by modern artillery and rifle fire. It was found that the "first field dressing" was quite powerless to prevent the ingress of pathogenic micro-organisms. The germs had already been inoculated before the dressing was applied. Experiments also proved that the application of pure liquefied carbolic acid to the wounded surfaces was not sufficient to combat those pathogenic organisms carried far into the tissues and quite inaccessible to outward applications. It must then be accepted that the great majority of wounds arriving at the base hospitals from the front are already septic upon arrival. In many cases the sepsis is of a very grave character and varies directly with the nature of the wound, the period of transit, and the treatment that has been adopted during this period.

The second of these factors may be dismissed with the remark that, considering the exigencies of war, the arrangements with regard to the evacuation of wounded from the front to the base appear to be such that very little, if anything, is to be desired.

As to the treatment during the journey from the front and subsequently, research has proved that radical changes are necessary in the methods employed. To these researches the army and the medical profession are indebted to Colonel Sir Almroth Wright. He has proved the absolute inefficiency of antiseptics applied to the large, irregular, and frequently very deep wounds produced by modern missiles.

Lymph Lavage: Employment of Carbolised Glucose.

To those working at the base it was evident quite early in the campaign that the ordinary methods then in use for treating septic wounds were not efficient in obtaining the best results. Wounds did not heal rapidly in spite of daily application of various antiseptic solutions, repeated fomentations, and the like. The importance of obtaining a rapidly healing wound can hardly be overestimated from a military standpoint. In the present campaign the functions of a large base hospital in France are mainly twofold—viz., (1) to cure as quickly as possible those men who can within a reasonably short time be brought to a standard of efficiency; and (2) to render fit to travel those patients whose wounds are too severe to allow early return to the firing line. Added to which, sufficient accommodation must always be available to cope with the sudden and possibly unexpected arrival of large convoys of wounded from the clearing stations and field ambulances. Unless wounds heal rapidly a congestion of cases occurs, due to inability to transfer patients either to England or convalescent camps. Any method, therefore, which favours this end appears deserving of consideration by those engaged in treating the large number of septic wounds continually arriving from the front. Wright has shown that diminution in sepsis can be most readily attained not by the application of bactericidal substances from without, but rather by utilising the antibacterial bodies normally circulating in the blood and lymph. Aerobic and anaerobic organisms are present in the nooks and crannies of wounds in positions quite inaccessible to any antiseptic solution applied from without, but readily destroyed if sufficient bactericidal bodies can be brought into contact with the same by means of the lymph stream. In other words, "lymph lavage" is the all-important factor in the treatment of septic wounds. Wright suggested that this may be established by the application of hypertonic solutions to wound surfaces. He advised the application of a solution of sodium chloride, 5 per cent., with the addition of sodium citrate, 1 per cent., to prevent coagulation of lymph in the tissue interstices.

Adopting Wright's recommendations, I treated a series of shell and gunshot wounds of varying degrees of severity, admitted to No. 8 General Hospital, Rouen, by the application of hypertonic saline solution. The results obtained were sufficiently convincing to prove the correctness of his views. At the same time, the degree of lymph lavage produced by a saline solution was not great, and although sepsis diminished and wounds healed the important factor of time was not sensibly diminished. It appeared to me, therefore, that even better results were possible by employing a solution of greater osmotic power. The substance that occurred to me was glucose. I therefore had a solution of liquid glucose prepared containing sufficient carbolic acid to have a strength of 1 in 80. This solution was applied directly to the wound surfaces and by means of plugs was carried into the recesses of the same. The results quite exceeded my most sanguine expectations. In a few hours sufficient lymph was exuded from each case to saturate the whole of the wool and bandage covering the part. Coincidently the purulent character of the discharge changed, and in a day or two a healthy granulating surface remained. The cases so far treated by carbolised glucose dressings include severe compound fractures and large lacerated wounds of the extremities, some involving the elbow-joint and necessitating excision of the joint. One case of shell wound of the cranium exposing the dura mater and injuring the superior longitudinal sinus was also so treated. All the cases made a rapid recovery and were ready for transfer to England at the end of seven days.

Treatment of Septic Wounds.

The routine which I now adopt in the treatment of all septic wounds may broadly be expressed as follows: (1) Removal of foreign bodies after location by X rays and if anatomically possible; (2) application of efficient drainage by enlargement of the wounds of entry and exit, or by fresh incisions into the tissues if required; (3) removal of as much necrotic and contused tissue and blood clot as possible; (4) application of warm hydrogen peroxide (20 vols.) to the recesses of the wound if anaerobic infection is suspected; and (5) establishment of profuse lymph lavage by the application of a solution of carbolised glucose on white gauze dressing or gauze plugs.

As regards the removal of foreign bodies, it must be remembered that Mauser and shrapnel bullets and fragments of shell are not the only objects that require extraction. Practically 50 per cent. of septic wounds contain more or less large portions of cloth carried deep into the tissues, and easily overlooked unless direct search is made. These fragments of "wardrobe," often extremely foul, are found not only with Mauser and shell wounds where the missile is retained, but also quite frequently in perforating injuries. They are a fertile source of severe and prolonged sepsis, and a danger to the individual until removal is effected. Foreign bodies of this nature are unrecognisable by the X rays, and their frequent presence is one very good reason why all septic wounds and sinuses should be carefully explored. I use the word carefully advisedly. These cases, many of them very serious, should not be regarded as matters of little concern, and any operative interference should only be in the hands of those qualified by practice and experience to conduct such.

Concerning the question of efficient drainage, much depends upon the type of injury. In the case of large lacerated wounds with considerable loss of tissue, practically the whole surface is exposed and no further drainage is required. Care must be taken above all not to bank up such wounds with piles of gauze and wool and so defeat nature's own end. All that is required is a layer of gauze saturated in glucose solution, covered by just sufficient absorbent wool to soak up the very free discharge. Fomentations are the very worst type of dressing to employ in such wounds, especially if backed up with jaconet or batiste. These latter are now entirely absent from my wards, and since they have been discarded a marked improvement has been noted in the condition of the wounds.

Referring to the removal of necrotic and contused tissue and blood clot, it may be argued that the leucocytic zone is broken down and infection implanted upon tissues previously healthy. Experience has shown that this risk is by no means real. In fact, wounds so treated heal more rapidly after removal of all débris and necrotic tissue than if time was expended in waiting for sloughs to separate. In the case of compound fractures some doubt has been expressed as to the advisability of removing loose fragments of bone. In the presence of severe sepsis I unhesitatingly recommend that all such loose fragments be removed at the time that the wound is originally explored. Unless this is done convalescence is delayed and sooner or later the fragments are discharged as foreign bodies or require operative removal for persistent sinuses. In many cases of compound fracture, apart from other considerations, removal of loose portions of bone is required in order to establish free drainage. The fractures examined during the present campaign are in many cases remarkable for the extreme damage done to the bones. The osseous tissue is practically pulverised, and removal of the loose fragments is necessary before efficient drainage is possible. Once a free passage has been prepared for the evacuation of the discharges, all that remains is to establish a free and continuous flow of lymph by means of osmotic power. Glucose answers this requirement in an admirable manner. In the case of deep sinuses and bullet tracks it may be introduced in the form of suppositories containing sodium citrate with a basis of spermaceti or ol. theobrom. On the other hand, for large indolent wound surfaces it may be applied as an ointment containing sodium citrate (1 per cent.) with a lanoline basis. Where possible, such as in fixed hospitals, the best results appear to be obtained by soaking a layer of gauze or wisp of gauze plugging in a saturated solution of glucose containing carbolic acid (1 in 80) and applying it directly to the wound surface. Sufficient wool is added to the dressing to absorb the discharge, and no more. The part should on no account be firmly bandaged. In fact, in a fixed hospital, bandaging unless required for immobilisation purposes in conjunction with splints is best discarded altogether. The dressing is changed as soon as the discharge appears upon the surface of the wool. It may be asked, What is the value of carbolic acid in the dressing? It is added to the glucose solution to destroy those micro-organisms which are present on the surface of the wound and which are brought from the deeper tissues by the free flow of lymph. Its presence appears to prevent all foulness of the discharge and renders the wound and dressing free from odour. In a strength of 1 in 80 it does not damage the tissues, and further does not militate against healing of the wound.

Treatment at Dressing and Clearing Stations.

In conclusion, a few suggestions may be offered as to what can be done at the front and on the lines of communication to diminish the amount of sepsis during transit. Drainage must be established and lymph lavage instituted. At the front elaborate measures are impossible, and the very simplest methods must be employed. If it is impossible to make adequate arrangements for free drainage, at any rate care should be taken that the measures employed do not prevent it. In other words, all dressings and bandages should be applied quite loosely. Men appear to forget that in the case of extremities the limb almost invariably swells during its transit from the front to the next station, and that a bandage that appears properly applied at the dressing station may be an absolute danger if any delay is experienced during transit. Lymph lavage can be promoted by inserting one or more glucose and sodium citrate suppositories into the depths of a wound or along the track of a bullet. These suppositories are cheap, easily carried, and readily applied. In fact, it is much easier to slip one of these into a wound than to apply tinctura iodi with a brush. Finally, when the cases reach a clearing station or fixed station, where more detailed treatment can be employed, each wound should be examined with a view to establishing more efficient drainage if such does not already exist. In the majority of cases, if the part is swollen and œdematous and pyrexia present, it is quite sufficient to enlarge the wound by incision, opening up tracks and carrying a rubber drainage-tube into its depths. A carbolised glucose dressing should then be applied and glucose injected into the deep parts of the wounds. The case may then be transferred to the base hospitals, where facilities are available for meeting all surgical requirements.

If this routine were carried out I feel convinced that very soon there would be a considerable diminution in the number of foul suppurating wounds arriving from the dressing stations and clearing hospitals. Treatment of these septic cases is quite simple if conducted upon a proved physiological basis. It may be summed up in very few words—viz., (1) light bandaging, (2) free drainage, and (3) lymph lavage.

BRAIN ABSCESS IN A CASE OF PARATYPHOID B.

BY R. L. SCOTT, M.B., F.R.C.S. EDIN.,
TEMPORARY LIEUTENANT, R.A.M.C.;
AND
WILLIAM H. JOHNSTON, B.A., M.B. EDIN.,
TEMPORARY LIEUTENANT, R.A.M.C.

THE importance of a more accurate clinical and bacteriological differentiation between diseases of the coli group appears to be amply justified by the findings of the present campaign. Statistics are as yet incomplete, but those we have since the outbreak of hostilities demand a closer investigation of the interesting paratyphoid group. The following case of paratyphoid B., which recently occurred at No. 1 General Hospital, presents a particularly interesting complication.

The patient, aged 21 years, a private, was admitted into No. 1 General Hospital on Feb. 3rd, 1915. He gave a history of feeling ill, with pains in the abdomen, diarrhœa, and headache commencing on Jan. 26th. In addition, he now complained of pains in the back and legs. There were sordes, furred tongue, and characteristic spots on the abdomen, which was tympanitic and tender on palpation. Spleen enlarged. No abnormal signs in lungs and heart. Urine normal. Nothing characteristic in the fæces. Pulse 110. Temperature 103° F. On Feb. 4th a provisional diagnosis of enteric fever was made and the patient was removed to the isolation division of the hospital. He complained of severe pain in the right side of the head and seemed very ill and drowsy. The pulse became dicrotic. The blood was cultivated, but proved to be sterile. No organism of the typhoid group could be isolated from the urine or fæces.

On Feb. 8th the patient developed a hemiplegia of the left arm and leg; his left facial and left hypoglossal nerves were also paralysed. He developed incontinence of urine and fæces. There was no vomiting. No abdominal or cremasteric reflexes could be elicited. His expression was clouded and he became more drowsy, dull, and apathetic. He replied to questions very slowly, thickly, and not immediately, and yawned occasionally. He complained of pain in the right temporal region and at the back of the right ear. Percussion over these areas made him wince. There was no œdema over either mastoid, but tenderness was present over the right mastoid area, especially over the tip. Tenderness was also elicited over and down the right side of the neck in line with the internal jugular. On examination of the ears, beyond a slightly injected Shrapnell's membrane and a little injection around the handle of the malleus on the right side, nothing of note was found. There were no signs of past or present middle-ear disease. Nose and throat examination revealed nothing. Examination of the fundi was difficult, but the edges of the right disc appeared rather hyperæmic and indistinct. The pulse was no longer dicrotic, but full and slow; the temperature, on the other hand, remained high. This lack of conformity was very obvious on the chart.

A diagnosis of right temporo-sphenoidal abscess was made, and on the strength of the definite tenderness over the right mastoid it was decided to explore this region first, and if nothing should be found to trephine over the usual site. Unfortunately the patient collapsed under the anæsthetic before any operative procedure was begun. It was deemed inadvisable to proceed any further. Lumbar puncture was performed and 10 c.c. of clear cerebro-spinal fluid were withdrawn under no excess of pressure; cultivations of it were sterile. The subsequent history of the case was characteristic of a gradually increasing intracranial pressure. Coma and full stertor developed on Feb. 12th and death supervened the next morning.

Necropsy.—Post-mortem examination revealed the following:—The spleen, somewhat enlarged, was attached by recent adhesions to the diaphragm. The upper pole showed purulent softening. The walls of the greater part of the ileum were atrophic, thin, and transparent, and in parts intensely hyperæmic. There was a uniform enlargement of the corresponding mesenteric glands, those in the ileo-cæcal angle being most markedly affected. In that area individual glands were as large as beans; some were fused by an inflammatory œdema and showed on section central necrosis. The serous aspect of the cæcum presented a picture of intense hyperæmia with numerous adhesions. The lymphadenoid tissue of the ileum appeared to be but slightly affected, considering the amount and severity of the ulceration. The appearance suggested a general hypoplasia of the lymphadenoid tissue. Ulceration was confined to the lower two feet of the ileum and to the adjacent portion of the cæcum. The ulcers, irregularly placed, were pitted, varying in size from a pea to a shilling, with sinuous edges raised towards the mucous coat, well marked and slightly indurated. Resting on the muscularis mucosæ the floor was granular and of the usual striated appearance. The opposed area of serous surface showed neither localised peritonitis nor adhesions, and there was an entire absence of subserous follicles suggestive of tuberculous infection. The ulcers did not tend to encircle the gut, but had a follicular distribution, apparently with no definite relation to the lymphadenoid tissue. They suggested an acute process and appeared of recent formation. The largest, occurring near the ileo-cæcal valve, measured three-quarters of an inch across. There appeared a marked dissimilarity from the typical lesions of both enteric fever and tuberculosis.

The vessels of the dura mater were unduly injected. Beyond a slight engorgement of the capillaries leading down from the anterior part of the Sylvian fissure, the arachno-pial membrane was normal. There was a considerable œdema of the right brain well seen in the frontal and temporo-sphenoidal lobes. The right hemisphere was much larger than the left, overlapping it along the longitudinal fissure and to a certain extent displacing it. On section, an abscess about the size of a shilling was found embedded in the outer and posterior aspect of the right optic thalamus. The adjacent limb of the right internal capsule was partially destroyed. Pigmentation and encapsulisation were absent. The œdema on section was very obvious. There were the usual displacement and distortion of mesial structures, the fornix being pushed aside and the left ventricle being flattened. The abscess had not ruptured into the right ventricle.

For the following report we are indebted to Lieutenant M. K. Acheson, bacteriologist, No. 1 General Hospital. "Several attempts were made with negative results during life to isolate from the blood, fæces, urine, and cerebro-spinal fluid the organism causing the patient's illness. At the post-mortem examination a non-motile, Gram-negative

bacillus was obtained in pure culture from the spleen. In bile salt glucose and mannite it gave acid and gas; no change took place in bile salt lactose. The Bordet-Durham reaction was tried with results shown in the following table:—

—	Dilution.				
	1 in 40.	1 in 80.	1 in 160.	1 in 320.	1 in 1000.
Typhoid	Complete.	Partial.	Partial.	Negative.	Negative.
Paratyphoid A.	Almost complete.	,,	Very slight.	,,	,,
Paratyphoid B.	Complete.	Complete.	Partial.	Partial.	Partial.

The Bordet-Durham reaction for Gaertner could not be performed as no agglutinating serum was available.

As the brain was at once placed in formalin solution no bacillus could be isolated from the abscess when sections were cut. It is unfortunate that the Bordet-Durham reaction for Gaertner could not be performed, but the evidence, clinically and bacteriologically, seemed fairly conclusive that the disease was due to the bacillus paratyphoid B."

A CASE OF HYSTERO-CATALEPSY.[1]

BY LIONEL A. WEATHERLY, M.D. ABERD.

THE following case is interesting on account of its rarity, the difficulty of early diagnosis and prognosis, and the favourable result after the case had looked absolutely hopeless. Such a case is mentioned in no English text-books that I have consulted, and leading psychologists and neurologists have written me that they have had no similar case in their practice. I saw the patient in consultation with Mr. Maitland Scott at a nursing home on July 14th, 1914, and at his and the mother's request she was removed to my care on the same day.

The patient was a spinster aged 35, but looked much younger. She came of neurotic parents. A brother was neurotic. The mother was always delicate and within the year had had a paralytic seizure. The patient had always lived with her mother and had been her constant companion. At the age of 17 she had a nervous breakdown and had been sent from home for a short time, but soon recovered. Some six months before admission she had been in constant attendance on her mother by day and night, much against the wishes of her medical attendant, Mr. Scott. The mother was most exacting, never liking the daughter to be out of her sight, and she was getting no sleep at night and no change by day. A few weeks before I saw her she had been so unwell and run down that she was sent away for a change with a companion. During this period her behaviour was somewhat strange. At the last place they stayed she was lost for a whole day, and when found could give no rational account of what she had been doing or her reason for absenting herself. She was then brought to Bournemouth to a nursing home. There was no history of masturbation.

I saw the patient on the morning of July 14th in consultation with Mr. Scott. She was laughing and singing; we had great difficulty in getting her to answer any direct question coherently. There was considerable mental excitement and restlessness and confusion of ideas. She had a typical hysterical appearance, with considerable tremor of eyelids. Reflexes were all exaggerated. Powers of coördination were normal. I pronounced the case as one of hysteria major due to stress and anxiety. Catamenia had been absent for some two months. As the nursing home could not keep her there because she was disturbing some surgical cases by her singing, and as she consented to come under my care, she was admitted into my house on the same evening.

On admission she was hysterically excited, with a very weak pulse and definitely anæmic. Isolation from friends and relations was at once agreed upon. For a few days she was quieter at times and spoke quite sensibly to her nurses and lady companion, talking about events some weeks previous to her leaving home, but seemingly had no recollection of more recent events. At other times she would only laugh and repeat questions without any attempt to answer them. She took her nourishment well, and had very fairly good nights with ℥i doses of compound cerebral sedative (Parke Davis), by day taking an iron tonic with valerian and nux vomica. In about 10 days' time some stereotyped movements of the arms and muscles of the face began, and the eyes were either wide open or tightly closed. The muscular tension in these movements was not always very marked at first and rigidity would after a short time lessen and the limbs could be easily moved (flexibilitas cerea). On August 1st the patient became worse. Some trismus set in. Great difficulty at times in feeding in consequence of violent laryngeal spasm. A rash now appeared on the arms, chest, and legs. There was no rise of temperature. The rash had the appearance of measles and urticaria and lasted 18 days. It was evidently trophic and gradually increased, and the fingers and toes had a myxœdematous aspect. Suprarenal extract (B. & W.), 5 gr. doses, was given by the mouth or rectum three times a day, and the rash gradually disappeared, but great desquamation followed.

During the period from August 1st to 18th she had several trance-like attacks, in which for some hours all reflexes were absent, including the conjunctival reflex. Prior to this trance condition there would be great rigidity of the limbs, the head thrown backwards, and the jaws either tightly closed or widely opened. After about an hour the rigidity would lessen, but the trance-like condition remained for some hours. Definite refusal of food now took place. Any attempt at tube-feeding by the nose or mouth was rendered impossible as violent spasms set in, and the patient almost collapsed. Rectal feeding was resorted to—beef enules, champagne and eggs, brandy and white of egg, &c. The pulse could hardly be felt or counted. Pituitary gland extract was injected hypodermically, and after each such injection the pulse began slightly to improve. This was alternated with hypodermic injections of 1/30 gr. strychnine. Mr. Scott saw the patient with me constantly, and I was with her several times in the night. Her relatives were summoned and death was expected every hour. She was greatly emaciated and almost unconscious. On the eighth day of rectal feeding the rectum no longer retained what was injected, and for 24 hours glucose was the only thing that could be retained, given in small doses.

On Sept. 3rd the patient became rather more conscious, and small doses of Valentine's meat juice and Brand's essence of beef were swallowed.

[1] Read before the Bournemouth Medical Society.

Gradually more nourishment was taken. Virol, cod-liver oil and malt, and a preparation of iron were now able to be administered, and she gradually improved physically, but for some days she had a return of the stereotyped movements of the hands and arms, and she did not recognise her relatives. She gradually improved, and by the end of September catamenia appeared, she became much more rational, took plenty of nourishment, and in about ten days' time she was able to join our family circle, and took short walks, played games, read, and made a complete recovery, and was discharged on Nov. 3rd.

Since then, by my advice, the patient has had a companion, has not been so constantly with her mother, and has been out much more and to places of amusement and has kept quite well, with the exception of occasional trophic skin affections, which Mr. Scott tells me have cleared up under thyroid or suprarenal extract.

I think I am justified in calling this a case of hystero-catalepsy. When the katatonic symptoms commenced I rather suspected one had to deal with a case of dementia præcox, but her age and some of her symptoms were, to my mind, against this, and I think the marked hysterical element was proved by the more or less sudden improvement and ultimate recovery after being at death's door. It will, of course, be interesting to know the further history of her condition, as cases are on record of recoverable dementia præcox, with an almost inevitable relapse.

Bournemouth.

THE X RAY THEATRE IN WAR HOSPITALS.

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IT is the experience of most who have to deal with the extraction of foreign bodies from the tissues that, in spite of the most accurate localisation, time and time again there are the most mortifying failures. The early realisation of this prompted us, at the Baltic and Corn Exchange Hospital, Ecole Sophie Berthelot, Calais, to seek for some method which afforded more direct guidance, and to this end we experimented for a time with the electric probe; but after five months of experience of the removal of foreign bodies, directly under the X rays, we venture to plead for the more routine adoption of a method which has afforded us so much satisfaction.

There are two chief reasons why we plead for the installation of an X ray theatre in all large war hospitals. First, the speed with which extractions can be performed—a factor of importance both in that the maximum of cases can be done in the minimum of time, and in that prolonged anæsthesia is avoided for the patient; and, secondly, the minimum of damage is done to the tissues. Over and over again we have had old, healed cases here for extraction, showing most extensive scars, souvenirs of prolonged search, in which we were able to extract the foreign body *vid* incisions incomparably smaller than their less fortunate predecessors. It is not our intention to minimise the value of accurate localisation, for that, of course, with this method is still necessary, especially when the trunk or head is involved. The X ray room here is equipped exactly as an operating theatre, but a few points may be worthy of note regarding technique and the general method of working in the theatre. The apparatus employed is by Dean, of London, and has given complete satisfaction. The table employed is three feet broad, with a movable tube box underneath, and the top used for operating is an extra-broad canvas stretcher. On this table it is possible, with the guidance of the rays, to operate on almost any part of the body. In place of mackintosh sheeting we employ jaconet, as the former is too opaque for general use (indeed, it acts as a fluorescent screen). It is obvious that the surgeon must always stand at the same side of the table, otherwise the proximity of the high-tension wires might prove annoying; but if the induction coil be on wheels, it is possible for the assistant to stand on the opposite side, the high-tension wires being made to approach the table obliquely from the opposite end. As assistance is not necessary during the actual extraction, he can stand aside while the apparatus is working. For the protection of the operator's hands we use here extra-thick rubber gloves; if more protection is desired, a thin sheet of aluminium may be placed between the tube and the patient.

The lighting of the theatre was at first very troublesome, the ideal light for the X ray room being subdued, while the reverse is true of the operating theatre. This difficulty we have overcome by employing an old automobile headlight over the table. A 100 candle-power electric lamp is placed behind the condenser, thereby concentrating the light only on the area of operation, the rest of the room being in comparative darkness. This permits careful dissections to be made when necessary, the eyes retaining that acuity so necessary for the actual extraction.

Regarding the administration of anæsthetics it is sometimes necessary for this is to be done for a time in the dark; the anæsthetist is equipped with a covered lamp, controlled by an ordinary electric bell push, and this flashed occasionally and working through a small diaphragm affords him sufficient light without interfering with the course of the operation. It is often necessary for anæsthetics to be administered with the patient in the prone position, but as in most cases the operation is a rapid one there has never been any trouble.

All cases admitted here are subjected to a preliminary X ray examination, and if a foreign body is present it is localised with a thoroughness which varies with the part involved. Should the trunk, the head, or the neck be implicated stereoscopic radiograms are taken. For the extremities all that is usually necessary is to determine roughly by moving the tube the relationship of the foreign body to neighbouring bony structures. Each case, however, must be judged on its own merits.

To facilitate description we may roughly divide cases to be treated into two great classes: (1) old and healed; and (2) recent and septic. In the old and healed the preparation is as for an ordinary operation; the towels are applied in the usual fashion, but we might add that it is advisable to clip them firmly to the skin, so that in the darkness they may retain their position. A towel is set aside for the screen of sufficient size to cover its under surface completely with a margin all around of about 2 inches. This is laid over the cleansed area and the screen is placed in position by the theatre orderly. The assistant now clips on the towel at the four corners, and for this purpose we employ Dieffenbach's bull-dog forceps. Before the actual commencement of the operation the X ray tube is

brought into the vicinity of the part involved, and with the orderly supporting the screen the rays are turned on and the lights off. The foreign body is now accurately "centred," and to effect this a small diaphragm is employed. The movements of the tube box can be accomplished with the operator's foot, and these are rendered easier if a toecap to receive the point of the boot be fixed to the front of the box. The point of a pair of Spencer Wells forceps is now laid on the skin so that it coincides with the shadow on the screen. The light is now turned on and the screen removed. With due regard to anatomical considerations the incision is made, not necessarily immediately over the foreign body, for, indeed, an oblique approach is often easier. The skin incision should be fairly free, and when the muscles have been exposed blunt dissection can be employed. No violence in the extraction is permissible, and should the foreign body be in the vicinity of important structures free and careful dissection in a good light is demanded, the operation being merely controlled by occasional reference to the screen. The forceps employed here for actually extracting foreign bodies are usually Kocher's or long Spencer Wells's. As a guide to the correct estimation of the depth of the foreign body it is extremely useful, while the forceps are approaching to move the tube box from side to side with the foot. The relative movement of the foreign body and the point of the forceps indicates their distance apart; for example, if the ball apparently moves somewhat faster than the point of the forceps, the ball lies somewhat deeper. With experience it is scarcely ever necessary to move the tube, more particularly in the case of the extremities, for here a slight rotatory movement of the part supplies the necessary information. The extraction having been performed, the wound is sutured in the ordinary way.

In septic cases, where a sinus exists, the preliminary cleansing of the part and of the sinus is of the utmost importance. For this purpose we employ a triple irrigating apparatus; three irrigators mounted on a stand are connected so that each in turn may be made to discharge *vid* one cannula.

The solutions employed are: (1) Biniodide of mercury (1 in 1000); (2) carbolic acid (1 in 40); and (3) hydrogen peroxide (1 in 3). The wound is copiously irrigated with these one after the other. This treatment may seem drastic, but is no more than is merited by the frightful septicity with which we so frequently have to deal. The actual extraction of the foreign body is now performed, but here free incisions are very desirable. It is usual to approach the foreign body by an incision which will, by reason of a dependent situation, afford the best drainage possible. In more quiescent cases an approach *vid* the sinus is frequently sufficient. It is often of value to leave the forceps and the foreign body *in situ*, and enlarge the tract freely before extracting; in this way foreign matters, such as cloth, &c., perhaps of greater importance even than shrapnel and bullet, can be in many cases removed.

As indicating the general applicability of the method, we may mention that with the guidance of the rays we have removed foreign bodies from the posterior mediastinum and from the sphenomaxillary fossa; then there was a pelvic case in which two previous abortive efforts had been made to extract a bullet. In this case we successfully removed the bullet interior from the region of the great sacro-sciatic ligament and the mantle of the same bullet from behind the neck of the femur. Foreign bodies in the neighbourhood of the spine and in medulla of bones have likewise been removed with a success which is all the more gratifying as many of these cases showed evidence of previous attempts. In multiple shell wounds this method of treatment gives much satisfaction; in these cases each wound in itself seems trifling, but the sum total of upwards of six suppurating foci induces such a toxæmic state that prolonged anæsthesia and much interference are very undesirable. We prefer also to operate on compound fractures on the X ray table, as the steps of the operation from start to finish can be controlled and guided by reference to the screen. The value of the method is unquestionable, and while we cannot claim for it originality, we are not aware that it has become a routine method of treatment in any other hospital. With a little experience it becomes possible to remove minute fragments which in the ordinary way would necessitate frightful mutilation.

In conclusion, I wish to acknowledge my indebtedness to Mr. C. M. Hewer, surgeon to the hospital, for his invaluable aid in meeting the many difficulties which arose in the evolution of the X ray theatre.

A RE-INVESTIGATION ON THE NATURE OF THE CELLULAR ELEMENTS PRESENT IN MILK.*

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IN a series of papers Hewlett, Villar, and Revis[1] recorded the results of investigations on the nature of the cellular elements present in milk. It was shown that cells of various kinds are always present in the milk of perfectly healthy cows, sometimes in enormous numbers, and that no reason could be assigned for the considerable variation in the number of the cells which occurs in the milk of different cows. A preliminary classification of these cells was formulated, and the opinion was expressed that the vast majority of them are not leucocytes, and that the "multinucleated cells" which are frequently present in considerable numbers and have a superficial resemblance to polymorphonuclear leucocytes are for the most part the "germinal cells" of Winkler derived from the epithelial layer of the glandular tissue of the udder and are embryonic cells which develop into epithelial cells.

Breed[2] has recently again stated that these cells are polymorphonuclear leucocytes derived from the blood, and asserts that the evidence formerly adduced by Hewlett, Villar, and Revis is not convincing. As, however, Breed produces no evidence at all in support of his statement, and also having regard to the importance of the subject from the public health point of view, we have considered it

* This investigation has bee carried out in the Bacteriological Laboratories of King's College, London, and of Messrs. Welford and Sons, with the aid of a grant from the Medical Research Committee.

[1] Journal of Hygiene, ix., p. 271; x., p. 56; xi., p. 97; xiii., p. 87 (Bibliography).

[2] New York Experiment Station, Bulletin 380, 1914.

advisable to re-investigate the nature of the cellular elements present in milk, to revise their classification, and to attempt to determine the factors which influence their number in the milk of different cows.

With the object of elucidating the nature of the cells and to revise their classification a large number of trials of various methods of preparing, fixing, and staining films has been made, and it is proposed first to detail the results of this part of the investigation.

Obtaining the Cells.

The cells must be obtained by centrifuging the milk, but it is found that the number of cells thus obtained falls far short of the actual number which deposit after a preliminary treatment of the milk. This preliminary treatment may consist either in warming the milk to 60°–70° C. for 10 minutes or by the addition of a small quantity (0·5 per cent.) of formalin to the milk and allowing the mixture to stand for 24 hours before rotating. The latter was the method adopted in our previous investigations, but the question arises whether some alteration of the cells is not produced thereby. We have made comparative examinations of the cells obtained from milk with and without the addition of formalin, and there is no doubt that even the small quantity of formalin formerly employed does sometimes cause decided contraction of the cells. We have therefore in the following investigation discarded the use of formalin. We find also that a considerable proportion of the cells, and in particular that variety of them which we have provisionally named the "multinucleated," are carried up in the cream-layer, and if the cream-layer be broken up and the milk rotated again, a further yield of cells is obtained; but the process must be repeated three or four times (the breaking up of the cream-layer and subsequent rotation) if even a majority of the cells is to be obtained in the deposit.

Preparation of the Films.

After the deposit of cells has been obtained by centrifuging, they need to be washed so as, so far as possible, to remove the milk and fat admixed with them. The supernatant milk is decanted from the deposit of cells and the fat wiped out of the tube. The cells are then washed. We naturally at first employed physiological salt solution for this purpose, but a study of the results so obtained undoubtedly points to the conclusion that some alteration and distortion of the cells occurs when the film is made and allowed to dry, probably from the concentration of the salt which must inevitably take place as the water evaporates.

As the shape of the cells will be materially affected by the tonicity of the fluid in which they are placed, we were at first inclined to believe that the osmotic pressure of ordinary physiological salt solution was different from that of the milk in which the cells at first find themselves. From the freezing point of milk it may be deduced that its osmotic pressure corresponds to that of a saline solution of 0·9 per cent. concentration. Experiments were therefore made with solutions of sodium chloride of 0·7, 0·8, 0·9, and 1·0 per cent. concentrations, but there appeared to be no appreciable difference in the resulting film. The same distortion or alteration was still noticeable. It was then established that the salt solution in itself had no such influence, as, if the deposit after washing with salt solution was then washed with ox serum (see below) the cells were normal in aspect. It seemed, therefore, that the drying in films was really responsible for the alteration, though it is noteworthy that the tendency is rather towards an expansion of the cell than a contraction, as would be expected in a solution which was rapidly concentrating.

Another modification employed for washing was an alkaline physiological salt solution. Sodium carbonate (Na_2CO_3) was used for this purpose, so that the final alkalinity corresponded to N/35 Na_2CO_3 (which is approximately that which obtains in blood serum, according to Wright) and the Na-ion concentration was made approximately equal to 0·9 per cent. NaCl. Other modifications of the wash-liquid were (*a*) solution of egg albumin adjusted by the addition of distilled water to 7·25 per cent. of protein, so as to correspond with the protein content of ox serum; (*b*) egg albumin and sodium chloride, so as to contain 7·25 per cent. of protein and a Na-ion concentration equal to that of 0·9 per cent. solution of sodium chloride; and (*c*) ox serum, both unheated and heated to 56° C. for half an hour. None of these presents any special advantage with the exception of ox serum. We find that washing with heated ox serum gives undoubtedly the best results, causing the least contraction of the cells of any washing agent employed. The aspect of the cells obtained from the same milk, washed in the one case with saline and in the other with ox serum, is entirely different, and the cells would scarcely be recognised as of similar origin. The effect of saline is most marked on nuclear structures.

Preparation of the Films.

The cellular deposit after washing and centrifuging is deposited on a clean slide and spread with a glass rod so as to form a thin even film. This is allowed to dry in the air or by warming to 37° C., and the slide with the dry film upon it is then immersed in a mixture of equal parts of alcohol and ether, to remove the fat, for from half an hour to several hours; it is then ready for staining.

Staining the Film.

A number of different staining methods has been tried, the stains employed being Jenner's stain, Leishman's stain, Pappenheim's stain, Giemsa stain (Revis's method [3]), Giemsa stain (Coles's method [4]), Ehrlich's tri-acid stain, hæmatoxylin and eosin, and the May-Grünwald stain. Of all these, the May-Grünwald stain [5] undoubtedly gives the best results. This is carried out as follows: One tablet of the May-Grünwald stain is dissolved in 100 c.c. of pure methyl alcohol (this solution keeps well). Of this solution, 0·3 c.c. is dropped on the film and allowed to act for one to two minutes, then 0·9 c.c. of specially distilled water is dropped on and is allowed to act for three to six minutes. The film is finally washed in distilled water and dried in the blood-heat incubator. In order to prevent the stain running all over the slide it is useful to make a streak at either end of the film with a soft paraffin mixture composed of vaseline 75 parts and paraffin wax 25 parts, and melted in hot water for use.

We are now trying the method described by Scott for blood films,[6] in which the films are not allowed

[3] Journal of Hygiene, 1910, vol. x., p. 83.

[4] See Hewlett's Manual of Bacteriology, fifth edition, 1914, p. 525.

[5] The May-Grünwald stain is made as follows: 100 c.c. of a 1 per cent. solution of eosin are mixed with 100 c.c. of a solution of methylene blue and allowed to stand 24 hours. The precipitate is washed with water and dried and made up into tablets of 0·25 gramme each.

[6] Journal of Pathology and Bacteriology, 1901, vol. vii., p. 133.

to dry but are fixed with formalin vapour and the staining is carried out on the wet film, and anticipate that it may give still better results. Undoubtedly the nuclear structure revealed by this method is very different and much more complex than that brought out by the other methods.

A point of importance, and one which perhaps has not received sufficient attention, is that the aspect of the cells differs considerably according to the staining method employed. This applies not only to the cells of milk, but also to the leucocytes of ox blood (which we are also studying) which we have employed to control our methods. The actual tint of the various structures is also markedly affected by the reaction of the fluid used to wash the deposit in, so that films of cells washed in saline showed very different results from those washed in ox serum. It is quite certain that some method of at once hardening the cell wall in order to obviate distortion and disruption is essential to the proper study of these cells. It is not improbable that the cells as they appear in ordinary films are quite different in appearance from that which they really possess. For this reason the method of Scott, though somewhat more difficult of application than ordinary methods, has manifest advantages. The statement commonly made that the cells of milk stain well and naturally with ordinary blood stains is, in our experience, quite erroneous.

Influence of "Keeping" on the Cells.

The cells present in milk may obviously either be "recent" or may have gained access to the milk from the period immediately succeeding the last previous milking. The question arises, Will such a sojourn in the milk alter these cells? It is difficult definitely to answer this question. We know that leucocytes may be kept in physiological salt solution apparently unaltered for many hours, and we find that ox leucocytes added to milk are apparently unaltered after a sojourn of 24 hours at room temperature. Similarly, the cells of milk examined immediately after milking and again examined after the same milk has been kept at room temperature for 24 hours show little or no difference. The probability is therefore that the majority of the cells present in milk undergo little or no alteration during the period the milk remains in the udder.

URINARY CALCULUS IN THE PELVIC PORTION OF THE URETER.

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CASES of calculus impacted in the ureter are of interest from the diagnostic point of view, especially when the stone lies in the right ureter, for in whichever portion it is situated the resemblance of the symptoms to those of appendicitis may easily lead to error. In the present paper I propose to call attention to some points in the differential diagnosis of calculi in the pelvic portion of the ureter and to describe what I consider to be the best route for the removal of such impacted stones.

The three common situations in which calculi become arrested in their descent from kidney to bladder is: (1) At the junction of the renal pelvis and ureter; (2) in the abdominal portion of the ureter, including that part which crosses the brim of the true pelvis; and (3) in the pelvic portion of the ureter. The second is the least common, the first can hardly be distinguished from calculus in the kidney itself, while the third gives rise to symptoms of a most variable nature. It is well known that calculi may remain impacted in the ureter for a considerable time, giving rise to no symptoms when once they have actually come to rest unless the intermittent obstruction which they cause leads to either hydro- or pyo-nephrosis. On the other hand, even stationary calculi may give rise to attacks of pain closely resembling typical renal colic associated with hæmaturia.

Diagnosis.

Most surgeons have knowledge of cases where appendicectomy has been followed by the passage of a urinary calculus per urethram, and of instances of obscure abdominal pain where a similar natural relief of all symptoms has occurred. Such events, whilst satisfactory to the patient, should lead to humility in the surgeon and a determination not to neglect the aid of skiagraphy in doubtful cases. With regard to calculi impacted in the last few inches of the ureter, Thomson Walker[1] states that symptoms of bladder irritation are prominent features, and that there is frequency of micturition with pain along the urethra to the end of the penis; also that genital symptoms may exist, such as painful emissions, hæmospermia, and testicular pain. The patient may complain of pain in the rectum, aggravated by defæcation. Undoubtedly the most constant symptom is pain; abdominal pain, pelvic pain, renal or ureteral colic may be associated with a calculus which has come to rest even in the pelvic portion of the ureter, and the most usual history is of severe attacks of pain in the lumbar region in the past and dull gnawing pain in the lower abdomen in the present history of illness. It is not uncommon for a fixed pelvic calculus to cause pain starting in the loin and extending to the hypogastrium. If definite attacks of pain occur they are usually accompanied by vomiting, sweating, and hæmaturia, but the last symptom is the least constant and may be observed only once or twice even where the attacks are numerous. Rest in bed frequently fails to give immunity against these attacks, as it does in ordinary renal colic. Some fever is apt to be present. As regards urinary symptoms, frequency is the most common, and a careful examination shortly after any acute attack of pain will usually reveal the presence of a trace of albumin and possibly some pus cells; hæmaturia, as already mentioned, occurs in some acute attacks. Tenderness and rigidity on palpation are not uncommon both in the lumbar region and the hypogastrium, even when the stone is impacted close to the bladder. The rigidity, of course, is rarely of the same degree as that found in peritoneal lesions. Hydronephrotic symptoms are comparatively rare, but if they are present they dominate the clinical picture, and before operation the actual cause of such hydronephrosis may not be suspected. The ultimate diagnosis usually rests with the result of X ray examination although it may be possible in children to palpate a calculus in the pelvic portion of the ureter by rectal examination, or by the vagina in the female. When the stone lies impacted in the ureter behind the bladder wall cystoscopic examination is usually negative as regards the appearance of the ureteric orifices, but the passage of a ureteric bougie may be arrested, and this observation combined with skiagraphy is

[1] Choyce's System of Surgery, 1912.

most useful in proving the presence of a calculus and the fact that it lies in the course of the ureter. The necessity for such catheterisation of the ureters exists in cases where shadows of an uncertain character are seen on the skiagraphic plate, and the most frequent sources of error are fæcal matter, calcified glands, and phleboliths; the last named most frequently give rise to doubt because they are quite common in the pelvis and not infrequently lie about the line of the ureter, and in size they may correspond to such an impacted calculus. Apart from the need for combined catheterisation of the ureter and skiagraphy it should be borne in mind that calculi are usually elongated or bean-shaped, and nearly always present one pointed extremity, due to the wearing away of the lower end of the calculus in most cases, whereas phleboliths are spherical, and I think I am right in saying they are never shaped like a bean with one pointed extremity.

The reports on the skiagrams of three cases recently under my care may be of interest. They were all taken by Mr. A. D. Reid, radiographer to St. Thomas's Hospital, and his reports were as follows:—

CASE 1.—Male, aged 36 years. Two years' history. "Shadow present. Probably calculus in lower end of right ureter."

CASE 2.—Female, aged 24 years. Six weeks' history of recurrent pain. A calculus had been removed previously from the left ureter. "Kidney region *nil*. Shadow of calculus in lower end of the ureter, or possibly a phlebolith." Both a phlebolith and a calculus were found at operation.

CASE 3.—Male, aged 9 years. Two and a half years' history. "Shadow in upper part of bladder region. Probably calculus incarcerated in bladder wall." In this case the calculus had been felt on digital examination of the rectum by my colleague, Dr. C. R. Box.

In these cases a more or less accurate diagnosis was made, but required X ray examination to confirm it. In the first case the calculus was thought to be renal in position, in the last the possibility of appendicitis was very strong; in the second case it appeared clear that there was a local recurrence. The first case illustrates the importance of skiagraphy applied to the whole urinary tract in cases of suspected calculus.

Operative Treatment.

In those cases where palliative measures fail and there is no sign of the calculus descending to the bladder, when it may be crushed by the surgeon or passed by the patient, it is important not to delay operation lest gross changes take place in the kidney as the result of back pressure. In all these cases I operated by a suprapubic route, which I have since seen advocated by Judd.[1] It appears to me to be much the best method of reaching the pelvic portion of the ureter, and it has the great advantage of being almost a bloodless operation. The details are as follows. The bladder being distended with fluid and the table elevated so that the patient is placed in a moderately high Trendelenburg position, the usual median incision is made as for suprapubic cystotomy. As soon as the vascular outer coat of the bladder is thoroughly exposed the knife is laid aside and with a gauze pad the peritoneum is swept away from the upper and back part of the bladder. Two silk guides are then passed through the muscular coats of the bladder, which should be emptied of its fluid. The line of cleavage can then be followed by pulling the bladder up towards the lower angle of the wound and pushing the cellular subperitoneal tissue towards the diaphragm; in this way the ureter of either side can easily be found covered by only a small amount of connective tissue, and if a calculus be present and the ureter dilated above this it may be exposed in a few minutes. Some radicles of the vesical veins will be exposed, but in my experience it is rarely necessary to tie any blood-vessels. When the ureter has been identified by its position, its course, and by the presence of a calculus within it the simplest plan is to pass a couple of catgut stitches through its outer coats and pull it up towards the surface of the wound, but it is not desirable to bare any considerable length of ureter, nor is it necessary to do so. A small slit in the dilated ureter will enable quite a large calculus to be removed with narrow-bladed forceps, and the incision can then be closed by fine catgut at right angles to the long axis of the ureter. Some surgeons advise that such ureteric wounds should not be sutured, but I have found it quite easy to do and have had no trouble with leakage after operation, although I have always taken the precaution of draining the wound down to the ureter with a rubber tube. This can be withdrawn by degrees after 48 hours if the wound remains clean. In my cases the wounds were all healed at the end of a fortnight, and I am advising this route for operation on the pelvic portion of the ureter because it is simple, easy, and rapid. It is not mentioned in those special books on this subject which I have had an opportunity of consulting, and I am convinced that it ought to be regarded as the most suitable route for a calculus impacted in the pelvic portion of the ureter.

Devonshire-place, W.

[1] R. S. Judd: Annals of Surgery, 1914, lix., 393, "A Method of Exposing the Lower End of the Ureter."

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

ELECTRO-THERAPEUTICAL SECTION.

The late Dr. Lewis Jones.—The Standard Meal for X Ray Examinations.—Electrical Treatment of Stasis.—Glycosuria in Chronic Intestinal Stasis.—Simple Peptic Ulcer of Œsophagus treated by Ionisation.—Exhibition of Skiagrams.

A MEETING of this section was held on April 16th, Dr. IRONSIDE BRUCE, the President, being in the chair.

Dr. REGINALD MORTON alluded, in sympathetic terms, to the recent death of Dr. Lewis Jones, a loss which, he said, the section would not be able to make good, for Dr. Jones was truly the father of electro-therapeutics in the British Empire. The specialty began its upward trend when the deceased took charge of the electrical department of St. Bartholomew's Hospital in 1889—a fact largely attributable to his scientific methods, his thoroughness, and his accuracy. In the earlier days, when scorn was encountered, Dr. Jones never lost his good spirits or sought to retaliate, for he had a robust belief in its future, which had since been fully justified. He had suffered greatly from the loss of his son, who went down on H.M.S. *Hawke*, and that calamity he had never recovered from. Though a reticent man, Dr. Jones was very kindly, and one of the best features in his strenuous life was the encouragement he was always ready to give to younger aspirants in radiology. For himself (Dr. Morton) he had done many kindnesses, both scientific and in matters more mundane. It was, indeed, only those whose privilege it had been to know Dr. Jones intimately who could appreciate how great was the loss due to his death. Dr. Morton moved:—

That this meeting wishes to express its deep sense of loss by the death of Dr. Lewis Jones, and its appreciation of all it owes to his work and personal influence, and desires to convey to Mrs. Lewis Jones an expression of its sympathy.

—Dr. E. P. CUMBERBATCH, in seconding the motion, said that he had only known Dr. Lewis Jones since 1911, but he soon discovered that he was a skilled physicist and an able

physician. Ever since he had been associated with that gentleman he had found him a kindly light leading him through the gloom.—The motion was adopted by members rising in their places.

Dr. REGINALD MORTON read the report of the subcommittee of the section on a Standard Opaque Meal for Radiographic Examination of the Alimentary Canal. The subcommittee consisted of Dr. A. E. Barclay, Dr. A. F. Hertz, Dr. Reginald Morton, Dr. A. C. Jordan, and Mr. S. Gilbert Scott. Dr. Jordan did not subscribe to the main report, but submitted the separate report mentioned later. The report consisted of five heads: (1) The standard meal can consist of either bread-and-milk or porridge; (2) the total bulk of the meal should be about half a pint; (3) the meal should be mixed with two to three ounces of barium sulphate or bismuth oxychloride; (4) it should be taken when the stomach is as empty as possible; and (5) no aperient or other medicine should be taken within 36 hours of the first examination, and if the bowels are not opened naturally an enema should be given on the morning of the examination. Concerning the preparation of the bread-and milk, 2 oz. of white bread, devoid of crust, should be cut into small cubes; 8 oz. of ordinary or malted milk are boiled in a separate vessel with 2 oz. of bismuth oxychloride or barium sulphate; this is stirred and poured over the bread, sugar being added to taste. If porridge be chosen, 7 oz. of it are mixed with 2 oz. of bismuth oxychloride or barium sulphate and milk to bring the total to 10 oz., sugar to taste being added. The following useful notes were appended. Bismuth carbonate neutralises about 22 per cent. of the free acids of the stomach, but there is no evolvement of gas, as the carbon dioxide is dissolved as rapidly as it is produced (H. Finnemore and A. E. Barclay). The reduction of the acidity of the gastric contents tends to reduce the motor activity of the stomach and to interfere with the normal action of the pylorus. Bismuth oxychloride is slightly more opaque to X rays than is bismuth carbonate (Reginald Morton). Bismuth oxychloride is about one and a half times as opaque to the X rays as an equal bulk and twice as opaque as an equal weight of barium sulphate (Reginald Morton). Dr. Jordan's report stated that in his opinion the standard meal described was not suitable for the investigation of chronic intestinal stasis, and for this he recommended an emulsion containing 4 oz. of carbonate of bismuth with sugar of milk and water, two hours after an ordinary breakfast, without purge or enema.—Dr. HERTZ thought a note should be added to the effect that barium sulphate was a preferable salt for hospital purposes because, while the radiographic effect was equal to that of bismuth oxychloride, it was very much cheaper. Guy's Hospital had saved about £50 a year by the substitution.—Dr. J. METCALFE discussed the question of making the meal more palatable by the addition of substances like chocolate, especially considering that such people had some abnormality of the digestive apparatus, and a repugnant meal might modify the functional result.—Dr. JORDAN thought a difficulty in the matter of flavouring was that tastes differed so widely, and one would have to learn the personal predilection beforehand. With regard to his minority report, a person with intestinal stasis could more easily take an emulsion than a solid meal, and the emulsion would render opaque the food already in the stomach. Persons should come for their meal as hungry as possible.—The PRESIDENT expressed the hope that the members would all adopt the standard now submitted, especially as it would greatly help a reliable comparison of results. He supported the suggestion that a note should be added concerning the cheapness of barium sulphate.—Dr. MORTON, in reply, said it was intended to allow a free hand in regard to added flavouring; the aim should be to give a meal which should be as little objectionable as possible. He was in favour of adopting barium sulphate universally instead of bismuth oxychloride. This was agreed to.

Dr. F. HERNAMAN-JOHNSON drew attention to the Alternative Treatment of Stasis by Electrical Rhythmic Stimulation of Abdominal Muscles, such as by the sinusoidal current, rhythmically interrupted. This could be done in conjunction with a mechanical support and the use of cascara or paraffin for the first day or two.—Dr. BARCLAY expressed his agreement with Dr. Hernaman-Johnson's remarks.—Dr. MORTON also bore testimony to the value of the slow sinusoidal current, with about one alternation per second.—Dr. T. J. BOKENHAM expressed similar views.—Dr. JORDAN remarked that operation should only be done when other means had failed, and those who found other ways of dealing with intestinal stasis benefited not only patients but the profession.

Dr. JORDAN read a paper on Glycosuria in Chronic Intestinal Stasis. In the experimental methods of producing glycosuria three facts stood out prominently: (1) Claude Bernard's "diabetic puncture" of the floor of the fourth ventricle of the brain; (2) the administration of certain drugs, especially phloridzin; and (3) extirpation of the pancreas. The last of these threw by far the most light on the etiology and pathology of diabetes mellitus, though so far there was still no specific cure for the disease. But the knowledge of the relation of the pancreas to persistent glycosuria was leading to important pathological and therapeutic results. The pancreas was not at fault in every case of diabetes, though it was found to be diseased in 75 per cent. of the cases examined post mortem. Nor was pancreatic disease always accompanied by glycosuria. If all but one-fourth of the pancreas were extirpated there was no glycosuria. With regard to the pancreatic function in relation to chronic intestinal stasis the undue retention of intestinal contents in the lower coils of the ileum led to their invasion by microbes from the cæcum, and as these coils were almost sterile in health they could not deal with large doses of bacterial toxins, hence there was set up a general toxæmia. These overloaded coils constantly pulled upon the mesentery when the person was in the upright posture; a thickening might form at the point of greatest tension, the commencement of Lane's "ileal kink." Instead of that, however, in a feeble patient the mesentery yielded, and its attachment to the posterior surface of the abdomen slipped down, and a kink was produced at the duodenojejunal junction, and behind this kink the duodenum was distended. This and the exaggerated duodenal peristalsis were apparent with X rays. The congested duodenum was later invaded by bacteria, probably resulting in ulceration, or infection of the gall-bladder *viâ* the common bile-duct. One of the results of the succeeding general toxæmia was, in women, a mastitis of nodular form, which later proceeded to chronic cystic disease, and might eventually become cancerous. Chronic pancreatitis was another sequel; and both cleared up with the relief of the stasis. Most subjects of glycosuria suffered from chronic intestinal stasis. The urine contained indican, xanthin bases, and tyrosin; and one of the first indications in glycosuria was to relieve the chronic constipation. Transitory glycosuria was also often present in subjects of rheumatoid arthritis and in dyspeptics. Dr. Jordan concluded by mentioning cases in illustration of his thesis, and showed an instructive series of skiagrams.

Dr. BARCLAY described a case of Simple Peptic Ulcer of the Œsophagus and its Treatment by Ionisation.

Dr. HERTZ exhibited skiagrams illustrative of the following conditions: Achalasia of the Cardia, Syphilis of the Stomach, Appendicitis with Undescended Cæcum, Appendicitis with Colon situated entirely on the Left Side of the Abdomen, Heart pushed over to the Right Side of the Chest by Splenic Flexure, Hirschsprung's Disease in an Adult without Symptoms, tracings showing result of treatment of Atonic Dilatation of the Stomach, and tracings showing results of treatment in Severe Intestinal Stasis and Coloptosis.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

A meeting of this society was held at the West London Hospital on April 9th, Dr. F. S. Palmer, past President, being in the chair.—Dr. Palmer showed: 1. A case of Progressive Muscular Atrophy, spinal type, in a male aged 39 years. 2. A case of Mongolism after eight years' treatment with thyroid extract and calcium salts, showing much improvement mentally and physically.—Mr. W. McAdam Eccles showed a case of a Bullet in the Heart Muscle, the patient being at the present time little the worse for its presence. It was demonstrated to the members present by Dr. Reginald Morton in the X ray department. The object was plainly seen, moving with the heart, just above the diaphragm and slightly to the right of the middle line. The patient was wounded on Nov. 4th last, the bullet striking him on the left shoulder. He walked a mile and a half to the hospital in Ypres, where first aid was given, and within less than 48 hours from the time he was wounded he was lying in St. Bartholomew's Hospital, his condition by that time being somewhat

critical. The general opinion of the members was that the bullet was in the right heart close to the septum.—Dr. George Pernet showed a case of late Congenital Scrofulo-syphilide.—Dr. J. M. Bernstein showed a single woman, aged 26, who for four months had suffered from Spastic Paraplegia affecting both lower extremities.—Dr. Reginald Morton showed skiagrams of two cases of Œsophageal Pouch, two cases of Malignant Stricture of the Œsophagus, and a series of radiographs, taken at hourly intervals, from a case of Organic Hour-glass Stomach.—Mr. H. S. Souttar showed: 1. A case of Injury to the Circumflex Nerve resulting in Complete Paralysis of the Deltoid. Ultimately the distal end was anastomosed with the posterior cord of the brachial plexus. The muscle has recovered. 2. A child, aged 11 months, who had swallowed an open safety-pin 1 in. long, which had remained stationary in the duodenum for five days. It was removed by pushing the point through the wall and making a minute incision for the passage of the head.—Mr. O. L. Addison exhibited a case of Fracture of both Patellæ after 25 years. Skiagrams showed that the union was obviously fibrous and had been treated without operation. The patient suffered no inconvenience at the present time.—Dr. Arthur Saunders showed cases of Pulmonary Tuberculosis, and one case of Bilateral Thickening of the Tibial Periosteum.—Dr. Sydney A. Owen showed a case of (?) Toxæmic Jaundice with Hepatic and Splenic Enlargement.—Dr. Palmer, in opening the discussion, referred to the continued and regrettable illness of the President, Mr. Aslett Baldwin, and said there was every hope that he would be able to be present at the proposed reception on April 23rd. General support of all members and their friends was asked for, because after paying expenses the proceeds would be handed over for the benefit of the Belgian doctors and pharmacists whose country and homes had been devastated. Referring to Dr. Bernstein's case, he considered it one of disseminated sclerosis. He also referred to Mr. Addison's case of fracture of both patellæ.—Mr. McAdam Eccles made some interesting observations on the general question of fractures of the patella, including methods of treatment and some of the difficulties in the way of securing bony union.—Dr. Owen's case was discussed by Dr. Saunders.

ÆSCULAPIAN SOCIETY.—A meeting of this society was held at the Metropolitan Hospital on April 9th, Dr. David Ross, a past President, being in the chair.—Dr. Ross showed: 1. A man, aged 40 years, suffering from Ectopia Vesicæ. He was wearing a portable urinal and had found no difficulty in carrying on his occupation. 2. A man, aged 40, who complained of a woolly feeling of the calf, accompanied by swelling of the right knee. Diagnosis, arthritis due to septic mouth.—Mr. J. J. Udale showed a youth, aged 19 years, suffering from Parenchymatous Goitre, who had never resided out of London.—Dr. Sidney Foreacre showed a specimen of a Trachea and Œsophagus in which a new growth—epithelioma—occurred in the œsophagus at the junction of œsophagus with trachea. The growth infiltrated the trachea and thyroid gland, and pressure on the recurrent laryngeal nerves caused loss of voice. Tracheotomy was performed without avail.—Dr. Leslie Durno read notes of a case of Herpes following the distribution of the middle branch of the left fifth nerve—viz., the lower eyelid, cheek, anterior temporal region, side of nose, upper lip, half upper jaw, upper part of pharynx, left side of soft palate, and half of the uvula. Pain was present for ten days before the appearance of rash.—Mr. W. S. Soden showed a "Plaster-of-Paris" Kidney from a woman, aged 71, who was brought to the hospital dead, the cause of death being dissecting aneurysm of the descending aorta. The condition was probably tuberculous going on to total calcareous degeneration.—Mr. J. J. McNaboe showed: 1. A man, aged 38, suffering from Glosso-labio-laryngeal Paralysis with right hemiplegia of six years' standing. The overflow of saliva commenced three years ago. There was a double aortic murmur and the hemiplegia commenced suddenly. 2. A girl, aged 14 years, with psoriasis guttata on the knees and elbows and psoriasis punctata all over the body, back and front. She had improved since last seen 28 days ago, although not under treatment. 3. A woman, aged 32, with Graves's disease, accompanied by a visibly pulsating right lobe of thyroid. A question arose in this case whether the pulsation was in the thyroid or was conducted to it from a dilated arch of the aorta.

Reviews and Notices of Books.

An Introduction to the Study of Colour Vision.

By J. H. PARSONS, D.Sc. Lond., F.R.C.S. Eng. Cambridge: University Press. Pp. viii.–308. Price 12*s.* 6*d.* net.

THE vast literature of colour vision consists almost entirely of papers written in support of some particular theory. It is therefore with unusual pleasure that we welcome this excellent all-round résumé of the subject.

The book is divided into three parts: Part I., the chief facts of colour vision; Part II., the chief facts of colour blindness; and Part III., the chief theories of colour vision. The subject dealt with is so extensive that it is difficult to make a selection of those parts upon which comment would be of most interest. One of the most striking facts is described on p. 53, where we learn how similar the condition of dark adaptation is to colour blindness. When the eye has been kept in the dark for 20 minutes or so the condition of scotopia or twilight vision is induced, in which the sensibility of the retina for low degrees of illumination is enormously increased. Scotopic vision depends apparently "upon low stimulus values and a comparatively high degree of dark adaptation" (p. 57), and presumably these two processes are subserved by independent physiological mechanisms. When the scotopic eye is subjected to the various coloured lights of the spectrum, if they are of very low intensity, a greyish band is seen with its brightest part in the neighbourhood of the E line (530 $\mu\mu$), instead of near the D line (580 $\mu\mu$), as in the normal photopic eye. Now it is found that the luminosity curve of all colour-blind persons shows exactly the same characteristic. Further, the curve of values for bleaching visual purple is extraordinarily similar to the above curves, so that we are driven to regard the fact as of the greatest significance in any theory of colour vision. A warning may be given against a hasty conclusion from the statement that "accurate matches can be made between any two parts of the spectrum by merely modifying the intensity of one light." It is well known how difficult it is to compare the luminosity of two different coloured lights, as they give rise to quite different impressions. The statement quoted only refers to the scotopic eye, and gives no help in comparing two bright lights of different colours as seen by the normal or photopic eye; indeed, as we have seen, the appreciation of illumination is quite different in the two eyes. It is interesting to find that Mr. Parsons quotes evidence in support of the readings of the flicker photometer for lights of a different colour; they are, indeed, confirmed by Ives's results with the same instrument. He says that in the bright prismatic spectrum the red light (670 $\mu\mu$) appears about ten times as bright as the blue (480 $\mu\mu$). On the other hand, the achromatic scotopic value of the red is less than one-sixteenth that of the blue. Hence with failing light the reds appear almost black and the blues relatively bright. This is known as Purkinje's phenomenon, and clearly it depends upon the peculiarity of the scotopic eye.

Under the heading Recurrent Vision (pp. 85–100) are given accounts of the phenomenon of several images recurring at longer and longer intervals after the exposure of a scotopic eye to a momentary flash of light, and also of the sensations produced

by intermittent flashes of light, flicker phenomena, &c. Porter's experiments on Talbot's law are given in considerable detail, but we have looked in vain for the observations of Stewart on the same subject.[1] In the next edition we should like to see some notice taken of Stewart's interesting curves, and a detailed account of the Benham's top phenomena. These are most important in their bearing on the tenability of any colour-vision hypothesis. In the present state of our knowledge no theory that has been advanced will account for all the facts of colour vision. The duplicity theory states that achromatic scotopic vision is carried out through the mediation of the rods alone, and that the perception of colour is dependent on the presence of the cones. It is well known that the rods are absent in the foveal area, and that in the peripheral parts of the retina rods become more abundant and cones fewer, just as the perception of colour diminishes towards the periphery of the field. Again, it has been shown that three whites of equal value to the normal eye, made by mixtures of red and blue-green, yellow and blue, green-yellow and violet, darken unequally with diminishing intensity. The photopic values of the mixtures are cone values, at lower intensities rod and cone values are mixed, and at the lowest only rod values persist. The Young-Helmholtz theory is the simplest way of accounting for the trichromatism of colour vision—i.e., that every known colour can be represented by a mixture of red, green, violet, and black sensations, as is well known by every one familiar with the three-colour process in art reproduction. Hering's theory postulates three pairs of primary colour sensations. This would explain nearly all the phenomena of after images and contrast effects, but it fails to give a reasonable explanation of the luminosity curves of the spectrum with the photopic and the scotopic eye; it is objectionable also in that it provides twice as many variables as the results of colour mixture demand.

We make no attempt to deal in a review with the seven other theories that the author describes. We can only refer our readers to this storehouse of information. The bibliography provided is excellent and has only a few trifling omissions, and throughout Mr. Parsons treats his subject with a scientific feeling that is admirable.

Lyon's Medical Jurisprudence for India, with Illustrative Cases.

By L. A. WADDELL, C.B., C.I.E., LL.D., M.B. Glasg., Lieutenant-Colonel, I.M.S. (Retired); Examiner in Medical Jurisprudence, Calcutta University. Fifth edition. Calcutta and Simla: Thacker, Spink, and Co. 1914. Pp. 867. Price 28*s*.

THIS work is offered as a complete exposition of the Indian medical jurisprudence of to-day, and the fact that a fifth edition has been called for shows that it has met with success. Not only is it a good manual on forensic medicine and toxicology in general, but it is rendered still more interesting by a description of the procedure in Indian law courts and of the peculiar circumstances under which the more common crimes come to be perpetrated in India and of the devices ordinarily taken to conceal crime in that country.

The detection of crime and the conviction of criminals in India are often rendered very difficult owing to special circumstances, such as the rapidity with which decomposition destroys dead bodies in the hot climate, and the facilities for concealing and destroying dead bodies, together with the general practice of rapid cremation or burial a few hours after death. Further, insufficient particulars of crime are of frequent occurrence in the police reports accompanying the alleged assaulted person or a decomposed dead body. Also, the untrustworthiness of native evidence is notorious. In nearly every case in law more or less false evidence is given, whether it be from fear, stupidity, apathy, malice, or innate deceit. The constant difficulty, therefore, is to sift the truth from the falsehood. A very common form of conspiracy is to cause a person to disappear and then to charge with murder some person against whom a spite is cherished. A plausible explanation is given of the disappearance of the body of the alleged murdered person, or a putrid corpse is obtained from the adjoining river, and after gashing it in several places it is brought forward as the remains of the missing individual. In such conspiracies circumstantial details are not infrequently sworn to by several persons, testifying as eye-witnesses to alleged facts of the murder, to the burial of the corpse, &c., so that conviction for the murder may be duly passed, and the falsity of the whole proceedings not be discovered until the reappearance alive of the person alleged to have been murdered. It has also to be remembered that a good deal of the crime against the person in India is the result of the primitive social state of the mass of the people and the observance of semi-barbarous cults and traditions handed down from the past, and often based upon primitive tribal instincts of self-preservation, but which now, under British rule, are illegal and criminal.

In this new edition the book has been thoroughly revised throughout and in great part rewritten to bring it fully up to date. An interesting new feature is the special chapter upon the Bio-chemical Test for Human Blood-stains, contributed by Lieutenant-Colonel W. D. Sutherland, of the Indian Medical Service. The process is described in its practical aspects. The great climatic difficulties hitherto experienced in carrying out this test successfully in India have now been effectively overcome. The vast number of illustrative cases which are quoted adds considerably to the interest of the work, and the extensive introduction of a new fount of clear heavy type for the headings and subheadings, and a fuller index, greatly facilitate reference. The text-book will be found useful not only by civil surgeons and medical students, but also by magistrates, police officers, and solicitors and barristers throughout India.

The Intervertebral Foramen: an Atlas and Histologic Description of an Intervertebral Foramen and its Adjacent Parts.

By HAROLD SWANBERG. With an Introductory Note by Professor HARRIS E. SANTEE. Illustrated by 16 full-page plates, none of which have ever before appeared in print. Chicago: Scientific Press. 1914. Pp. 101. Price $3.00.

Mr. Swanberg has taken a very limited subject for his study, and it stands to the credit of his ingenuity that he has managed to make a book out of it. The animal selected for his investigation is the "house cat"; but though we agree with the author as to its suitability from the point of view of size, we find it more difficult to approve of his further contention that "this animal and the human are very similar from a histologic and an anatomical standpoint."

[1] Proceedings of the Royal Society of Edinburgh, 1888.

It seems a pity that in making so concentrated an effort the author did not aim at better style of writing. In so small a compass there should be but little evidence of careless composition. Yet some passages detract seriously from the workmanship of the finished product—"How similar these bones are with those in the cat" and "There is a very small amount (of cartilage) on the articular processes, but considerable on the bodies," are examples. Throughout the book "ligamentum denticulata" and "ligamentum flava" are freely used. It may well be that this peculiarity of style has had its influence upon the opinion we have formed of the book; but we must own to the impression that, although a very small point has been studied, little has been made of it.

The Principles of Hygiene.

By D. H. BERGEY, A.M., M.D., First Assistant, Laboratory of Hygiene, and Assistant Professor of Bacteriology, University of Pennsylvania. Illustrated. Fifth edition. London and Philadelphia: W. B. Saunders Company. 1914. Pp. 531. Price 13*s.* net.

A PRACTICAL text-book that has reached its fifth edition has justified its existence and shown that it meets the requirements of a considerable body of students and practitioners of the subject to which it relates. In the present volume the whole sphere of hygiene, with its special departments connected with schools, the army, and the navy, is dealt with; and as the volume is handsomely printed in large type the 500 pages do not allow of much discussion in detail. It is accordingly, as its title indicates, an introduction to the study of the principles of the subject rather than a work to turn to for reference in practical difficulties.

The first chapters deal with air and ventilation; here it is said that expired air is "nearly always saturated with aqueous vapour": this should read, "always nearly saturated." The statement as to the effects of air vitiated by combustion is also obscure owing to careless punctuation. An unfortunate misprint on p. 73 in the formula for estimating the velocity of falling bodies, where $2gr$ is substituted for $2gs$, will perplex the student in a matter already somewhat difficult for the ordinary non-mathematical mind. Heating is next considered shortly in ten pages. The use of the term "indirect radiation" for what is generally known as convection in relation to systems of heating does not tend to clearness. Water and its supply and purification are next dealt with. The researches of McCarrison as to causation of goitre should have been referred to. A few pages only are given to sewage removal, and but little is said as to the construction of closets, soil pipes, and drains. It is rightly laid down that the soil pipe should be ventilated and disconnected from the drain, but the trap shown in Fig. 41 is an exceedingly bad one, and would undoubtedly lead to blockage in the drain. It has almost every fault that a trap can possess. Very little is said about the treatment of sewage, which is disappointing in view of the large amount of experimental work that has been carried out in the United States. Food, exercise, and clothing are then discussed briefly in Chapters VII. to IX.

Alcohol is considered by the author to be a food, but "the use of alcoholic beverages is to be condemned except under special conditions in disease where such a stimulant is required." Somewhat more attention might have been given to this subject. In dealing with clothing, the straw hat with broad brim is considered to be the most serviceable for inhibiting direct radiation of heat from the sun. No mention is made of the helmet, which (properly ventilated) is incomparably superior. The causation of disease is adequately dealt with, and full treatment is given to the subjects of disease prevention and disinfection in a very interesting book which forms a good general guide to a subject which has now become very far-reaching, and whose different branches require special study.

The Century of Columbus.

By JAMES J. WALSH, M.D. New York: Catholic Summer School Press. 1914. Pp. 577. Price $3.50.

Dr. Walsh shares with many of us the opinion (or the fallacy, whichever it may be called) that "the old is better." This opinion is in itself old and was held up to reprobation by Tacitus through the mouth of his character, Marcus Aper, in the typically Tacitean sentence, "vitio autem malignitatis humanæ vetera semper in laude, presentia in fastidio esse." In a former volume Dr. Walsh held up the thirteenth century as the greatest of centuries, and it undoubtedly has high claims to this distinction; in the present volume he lauds another period, namely, 1450–1550, as being "among the greatest periods of human accomplishment in the world's history," and again we may say that he is right in the main. The Renaissance was a time when men were great in both good and evil. There were men like Colet, More, and Linacre, and men like Henry VIII., Thomas Cromwell, and Protector Somerset; there were Popes like Julius II. and like Alexander VI.; there were great artists who were good men like Michael Angelo, and great artists who were bad men like Cellini.

Dr. Walsh discourses pleasantly enough upon the Renaissance under three aspects, the Book of the Arts, the Book of the Deeds, and the Book of the Words. We learn that Raphael "by universal consent, was the greatest painter that ever lived," but that was a matter of opinion, and to-day opinion, while adjudging him the prince of decorators, would be found, upon intellectual grounds, to give pride of place elsewhere. Nor can we agree that Palestrina was, though undoubtedly the greatest musician of the period under review, "probably indeed the greatest of all times," although in his own line he is certainly incomparable. Again, on p. 434, Dr. Walsh, in speaking of the "De Imitatione Christi," says: "The Revd. Dr. Liddon, the great Greek lexicographer, called it 'the very choicest of devotional works ....'" This quotation may be from Liddell or Liddon, but the former was the Greek lexicographer, and not the latter. But whether we always agree with Dr. Walsh or not, he has given us a most interesting book, and the chapters on medicine and surgery are a useful résumé for the medical historian of the two arts during the period.

Town Planning, with Special Reference to the Birmingham Schemes.

By GEORGE CADBURY, jun. London: Longmans, Green, and Co. 1915. Pp. 201. Price 7*s.* 6*d.* net.

THIS very practical and useful book is of special interest to the medical profession as showing how intimately town planning is bound up with public health and social welfare. Mr. Cadbury appropriately quotes Charles Dickens as saying: "I have expressed again and again the conviction founded upon observation that the reform of the people's habitations must precede all other reforms, and that

without it all other reforms must fail." The way in which all schemes of housing reform depend upon town planning is here clearly indicated, and the essential features of any town-planning scheme are said to be the following: (1) Limitation of the number of houses to the acre; (2) every house should be within reasonable distance of some open space; (3) careful planning of main roads, which should be wide enough to leave a separate track for tramways and should be connected up with a ring road, thus enabling heavy traffic to pass round the town instead of through it; (4) a belt of agricultural or park land should surround the town so as to prevent it sprawling out in the present formless, hideous fashion so characteristic of most growing English towns; (5) factory sites should be grouped together close to a railway siding, as this offers great advantages to manufacturers while preserving the amenities of the town; and (6) the whole scheme should be under the control of some responsible body which can treat the land as a whole and so harmonise conflicting interests.

These desiderata are, of course, rather in the nature of counsels of perfection, and can be obtained in their entirety only when a town is being built *de novo*, such as the Garden City at Letchworth. To this Mr. Cadbury very justly makes frequent reference; thus he points out that the death-rate there, with a population of 8000, partly residential and partly industrial, is only 6·1 per 1000. It is easy to exaggerate the effect of surroundings upon character, but Mr. Cadbury is in agreement with most social workers in supposing that the improved conditions of city life thus introduced will have an important effect in diminishing the amount of crime.

So far two schemes, both emanating from Birmingham, have received the sanction of the Local Government Board, and there are other schemes in preparation. These Birmingham schemes are described with great detail and with numerous excellent illustrations, and the particulars of one of them are given very fully in an appendix. Mr. Cadbury fully explains the various steps which have to be taken to conform with legislation by a local authority, and points out various reforms which would reduce the expense and simplify the method of inaugurating new schemes. He maintains that legislation for town-planning cannot be completely successful until the local authority itself owns the land. Some striking instances of the great expense involved in removing slum areas are given from Sheffield, Liverpool, and London.

Town planning takes into account the needs and possibilities of all classes of the community, and, as Mr. Cadbury well says, "it is not only the work of the architect and surveyor, but also of the business man, estate agent, and man of imagination." The book is well got up, with very good illustrations, and will be a most helpful guide not only to members of town councils, but to all who are interested in social reform.

LIBRARY TABLE.

Methods of Quantitative Organic Analysis. By P. C. R. KINGSCOTT, D.I.C., A.R.C.Sc., A.I.C., B.Sc. Lond., and R. S. G. KNIGHT, D.I.C., A.R.C.Sc., A.I.C., B.Sc. Lond. With diagrams. London: Longmans, Green, and Co. 1914. Pp. 283. Price 6*s.* 6*d.* net.—Quantitative organic analysis is admittedly more difficult of application than quantitative inorganic analysis, if only for one reason, that in the former case there are few ionic reactions, while in the latter they are the rule. Nevertheless, as these authors show, there are many schemes available for the quantitative analysis of organic compounds which give accurate results if pursued with care. The most useful section of this book, we think, is that on the analysis of organic compounds of technical importance, which include starches and sugars, indigo, oils, fats and waxes, alkaloids, alcohols, glycerine, phenol, acetone, chloral, and other definite bodies. The preceding chapters deal with ultimate analysis and the estimation of typical groups so commonly employed in research work and when theoretical considerations are in view. The book will prove a valuable help in the laboratory, where organic operations are not so widely followed, perhaps, as are similar inorganic operations, although the former are of quite equal importance. The instructions given are very clear, and indicate the joint authors' practical acquaintance with their subject.

English Medical Women. By A. H. BENNETT. London: Sir Isaac Pitman and Sons. 1915. Pp. 158. Price 3*s.* 6*d.* net.—Miss Bennett has written a pleasant and unpretentious little book about medical women, to which Mr. Stephen Paget contributes a kindly preface. There is nothing new in the book, but it will interest many of those who are not aware of the part played by women to-day in the profession of medicine. And medical women are by no means so novel as many people think. Besides those mentioned by Miss Bennett, we may mention the traditional medical work of Thecla in the primitive church, and in the eleventh century there were a number of medical women at Salerno, the mulieres Salernitanae, who were most successful practitioners. Miss Bennett describes with sympathy the struggles of Miss Garrett, as she then was, and of other pioneer women to obtain medical qualifications, beginning about the middle of the last century; this subject with other historical notes takes up the first part of the book. The second part is devoted to accounts of women's hospitals—i.e., hospitals worked by women, together with an account of the work being done at the seat of war by the Women's Hospital Corps. The next chapter gives an account, and a very thrilling one, of the work of the corps in Antwerp during the siege. Miss Bennett, a lay woman, has written a good book, but we would remind her that courtesy and kindliness to patients are not confined to hospitals worked by women, as she seems to imply on pp. 83 and 84.

The Report on Odontomes by the Committee appointed by the British Dental Association. With 94 illustrations. Published by the British Dental Association. Pp. 133. Price 6*s.*—At the annual meeting of the British Dental Association held in London in 1906 a collection of odontomes was exhibited, the specimens being lent by the various museums and private individuals. The scientific value of the collection was realised by the executive of the Association, and the preparation of an extended and illustrated account of the specimens was arranged for. The work was placed in the able hands of Mr. D. P. Gabell, Mr. W. W. James, and Mr. J. Lewin Payne, and they have the satisfaction of having produced the most valuable account of odontomes we are acquainted with. A careful search has been made for the records of cases of odontomes, and these have been collated and brought under different headings. This extended investigation has induced the editors to widen the scope of the term odontome, and they have included dental cysts, enamel

nodules, and many specimens which resemble cases of gemination. A new classification has been suggested, the specimens being classed under three main headings—viz., epithelial, composite, and connective-tissue odontomes, each of these groups being again subdivided. An idea of the manner in which the subject is treated can be gleaned by taking as an example dentigerous cysts. First, there is a general account of the pathology and clinical features, then follows a summary of cases the records of which have been traced, 91 in number; this is followed by a full account, with illustrations, of the specimens shown at the meeting; and finally there is a bibliography. The editors have produced a work of considerable scientific value.

JOURNALS

British Journal of Inebriety.—The April number contains an important article by Mr. F. S. D. Hogg, resident medical superintendent of the Dalrymple House Retreat, on the after-history and care of inebriates. Mr. Hogg bases his remarks in the records of a series of 1024 inebriate patients who have been discharged after varying periods of treatment at Rickmansworth. All the patients were men, and the majority belonged socially to the middle class. According to the histories obtained on admission, the patients were roughly divided into regular (or continuous) and periodic inebriates, the regulars outnumbering the periodics by about three to one. The writer's experience leads him to conclude that, while the duration of institutional care requisite to produce the best results varies with the circumstances of the individual case, there is an increased average of permanent effect corresponding to the increase in the duration of treatment up to about 12 months. The periodic inebriate appears to respond much better to treatment than does the regular drinker, 54 per cent. of the patients in the former category being reported as "doing well" after discharge, as against 37 per cent. of the continuous inebriates. The regular inebriates had on an average a longer period of excessive addiction before coming under treatment, but this fact does not appear to account for the less favourable results in their case, for in both regular and periodic drinkers the average duration of the inebriate habit was found to be practically the same among those doing well as among the total number of patients discharged. Mr. Hogg does not find that a hereditary history of inebriety, unless very pronounced and convergent, militates against the success of treatment. A hereditary history of insanity, on the contrary, affects prognosis very unfavourably. With regard to the influence of civil state, the married appear to have a three to two better chance of doing well than have the unmarried. Finally, Mr. Hogg notes that patients of phlegmatic temperament show the best results, while those of the highly nervous, and still more those of the passionate type do least well.—An article by Mr. John Newton on Alcohol and the War gives further evidence from newspaper correspondents regarding the beneficial effect of the prohibition of the sale of vodka in Russia and of absinthe in France, and commends the example of the Allies to this country.—Dr. T. N. Kelynack contributes a short descriptive paper on the use of posters as a method of anti-alcohol propaganda during the present crisis. Some samples are reproduced in the article, and show a moderation of tone which is not invariable in temperance literature and which should greatly enhance the appeal of these posters to reasonable people.

Parasitology. Edited by G. H. F. NUTTALL and A. E. SHIPLEY, assisted by EDWARD HINDLE. Vol. VII., No. 4. March, 1915. Price 10*s.* net. Yearly subscription, £1 10*s.*—Warble Flies, a further contribution on the biology of Hypoderma lineatum and Hypoderma bovis, by Seymour Hadwen, comprises the results of experiments carried out in 1913 and 1914 on these interesting cattle parasites. The experiments, taken in conjunction with the evidence of Carpenter and Gläser, lend support to the view that after the larvæ of the warble flies hatch from the eggs, laid on the hairs of the cow, they bore their way directly through the skin and subsequently migrate to the gullet, where they get a freer supply of oxygen and a loose areolar tissue which offers comparatively little resistance. Later the larvæ migrate to beneath the skin of the back, where they produce the well-known warbles, and when mature escape from the cow by again boring through the skin.—A list of the trematode parasites of British marine fishes, by William Nicoll, will be extremely useful to all students of this class of parasites, as the author has given a list not only of all trematodes found in fishes caught in British waters, but also of those found in British fishes in other parts of the world, together with the authorities for each record.—Note on a Case of "Tick Paralysis" in Australia, by C. Strickland, records the symptoms of a boy of 11 years, who got a tick in his ear while in the bush in Australia. The boy suffered from paralysis affecting the face and legs, but recovered within ten days of the removal of the tick.—The Nuclear Changes in Agrippina bona Strickland, by C. Strickland, contains a criticism of certain statements made by Lewin regarding the author's original account of this gregarine.—A paper on a New Family and Five New Genera of Mallophaga, by Launcelot Harrison, comprises descriptions of five new species of this little-studied group of bird parasites. These five species are assigned to five new genera, named respectively, Eomenopon, Machærilæmus, Heteroproctus, Austrogoniodes, and Psittaconirmus. The paper is illustrated by two plates and three text figures.—Observations on the Biology of Ixodidæ. Part II., by George H. F. Nuttall, deals with the biology of 14 species of ticks. The author adds complete notes relating to the raising of five species from the egg to the adult—namely, Amblyomma hebræum, Dermacentor reticulatus, D. venustus, Rhipicephalus bursa, and R. sanguineus, all of which are important carriers of disease. Less complete accounts are given of the four species—Amblyomma variegatum, Hæmaphysalis cinnabarina, H. concinna, and H. inermis—whilst only short notes are given which bear on the two species Amblyomma splendidum and Hyalomma syriacum. The notes on Hyalomma ægyptium, Ixodes putus, and Rhipicephalus appendiculatus supplement those already published in Part I. Of special interest are the records relating to Dermacentor venustus, the carrier of Rocky Mountain spotted fever in Montana and the cause of tick paralysis in British Columbia.[1] This species is what is known as a three-host tick; the larvæ drop off their host after taking about three days for engorgement; the gorged larvæ moult and the unfed nymphs emerge and attack another host and feed for from 5 to 11 days; the gorged nymphs then drop off, and after an interval of from 14 to 15 days (at 24–30° C.) the adults emerge. These then attack a third host and copulation takes place on the body of the host, the male seeming to prefer the semi-gorged female. When the latter is fully gorged it drops off the host and after an interval of two or three days begins to lay eggs. 7140 fertile eggs were laid by one female observed by the writer. The life-cycle of this species may be completed in 68 days under the most favourable conditions, but in nature the time is said to be usually two years. According to the investigations of Rickett on Rocky Mountain spotted fever, this tick transmits the virus of the disease as a nymph if it has fed upon an infected host (man, monkey, guinea-pig, &c.) in the larval stage; when infected as a nymph the tick is infective as an adult, and larvæ, the progeny of an infected female tick, are also infective. With regard to Ixodes putus, the author describes the effects of the bite of a female which attached itself to his leg on July 13th, 1912. A well-marked and irritant swelling was produced and the area about the site of the bite remained discoloured till the spring of 1914. Even after this had disappeared the itching sensation continued to occur suddenly at intervals of about a month, the last date on which it returned being Jan. 20th, 1915. The persistence of the after-effects of tick bites is very remarkable and worthy of further investigation.—Artificial Parthenogenesis in Ticks, by George H. F. Nuttall, contains an extremely interesting note on parthenogenesis in Rhipicephalus bursa. When counting the eggs of this tick they are separated from the mass by immersing them in normal salt solution and rubbing them about gently with the aid of a camel-hair brush. The results show that the only unfertilised eggs that ever developed were those that had been subjected to this treatment, and the author is convinced that the parthenogenesis observed was artificially induced by the manipulation accompanying the enumeration of the eggs.

[1] THE LANCET, April 10th, 1915, p. 763.

THE LANCET.

LONDON: SATURDAY, APRIL 24, 1915.

The Bacterial Infections of Projectile Wounds.

WE publish this week the third instalment of Sir ALMROTH WRIGHT'S Address on Wound Infections, which completes the pathological part of the remarkable dissertation which he delivered recently before the Royal Society of Medicine. The account of the new methods for studying the various factors in the treatment of wound infections will be read by all surgeons with extreme interest, and the far-reaching significance of that work will be at once appreciated. The note of challenge which is associated with all original scientific research is, of course, present, but not the most pedantic can find fault with Sir ALMROTH WRIGHT'S attitude towards the work and teaching of LISTER. "The Listerian discovery," he says, "that prophylactic applications of antiseptics can, in the ordinary compound fractures of civil life, stave off wound infection has no direct application to projectile wounds. Prophylactic applications will give good results only when they can come into operation on the microbes. In ordinary compound fractures of civil life this will be the case. For here the microbes lie exposed on the external surface of the bone which has been thrust through the skin. The contrary holds for projectile wounds. For here the microbes are carried down deep into the tissues and lie on the internal surface of a torn and ragged track; and that track is blocked by blood clot and hernia of muscles." No one will dispute the deduction which follows upon this statement that prophylactic applications of antiseptics in such circumstances could only leave an incomplete sterilisation. And this being so, it becomes incumbent to find a procedure which will accomplish in the circumstances of projectile wounds what antiseptic solutions cannot, because of the inaccessibility of the infected parts and because, also, of the quenching of the antibacterial power of the antiseptics by the medium in which they have to be employed.

This week, too, we publish a memorandum by Sir ALMROTH WRIGHT in collaboration with Mr. F. F. BURGHARD, Sir W. B. LEISHMAN, and Sir BERKELEY MOYNIHAN, all employed with the Army Medical Service, and, like himself, with the rank of colonel. This memorandum should be read side by side with Sir ALMROTH WRIGHT'S address, which it may be said to a certain extent to translate from the language of the laboratory to the language of the hospital ward. The characteristics of projectile wounds and the bacteriology of the initial infection are described; the measures for checking the anaerobic infection of discharges and for preventing the development of tetanus, gas gangrene, and streptococcal infection are carefully considered; and the treatment is indicated where, by an unchecked anaerobic infection of the discharges, resistance of the tissues has been lowered and it becomes necessary to take immediate steps to stem microbic invasion. The general considerations in connexion with drainage and the measures for promoting the outflow of lymph from an incision or from the infiltrated wall of a projectile wound are put quite briefly. If the provision of an outlet by an incision is not free enough, even though assisted by gravity—and the memorandum suggests that in infected projectile wounds such measures for the relief of pent-up secretion will seldom be adequate—a hypertonic solution of salt is recommended to promote the outflow of lymph in order that the lymph already present, which has become poisonous to leucocytes and impotent upon bacteria, may be replaced by lymph favourable to phagocytic activity and inimical to microbes. Mr. H. BECKWITH WHITEHOUSE in this week's issue, in a note on the treatment of gunshot and shell wounds, makes special reference to carbolised glucose as a dressing. Lymph lavage can be promoted by inserting glucose and sodium citrate suppositories in the paths of wounds or along the tracks of bullets. This is one method of inducing an increased outflow of lymph from the wound; this outflow having a double action, in part it will mechanically carry away the microbes infecting the wound, but, further, this newly formed lymph has a far higher bactericidal action on the invading micro-organisms, and the phagocytes which it contains will also have a powerful action in destroying the bacteria present. Now that the principle is recognised that it is beneficial to assist the production of this increased outflow of lymph, we shall find many substances employed to stimulate it. The war will last long enough to give us much information as to the value of these various methods.

The particular indications for the employment of vaccine-therapy as part of the routine treatment of suppurating wounds are stated in the memorandum, the procedure being justified as likely to make it possible to employ conservative methods in a larger proportion of cases; while the frequent and efficient dressing of suppurating wounds with a mild aseptic is recommended. From every point of view the memorandum will be of great value to many of the medical officers now serving with the army. At present surgeons both at the front and at base hospitals are in a measure in doubt as to the best treatment to be adopted for the wounds which come under their care. The methods which have been recognised as of value in the treatment of the less intricate wounds of civil life have proved unavailing in dealing with wounds inflicted by rapidly

moving bullets or by pieces of shrapnel, and infected with a virulent microbic flora. The investigations which have been undertaken under the ægis of the Army Medical Department will be of the utmost utility.

The Final Report of the Royal Commission on Sewage Disposal.

THE issue last week of the final report of the Royal Commission on Sewage Disposal presents a general summary of conclusions and recommendations on a question which has been before the Commissioners for a period of 16 years. Since the Commission was appointed in May, 1898, nine reports have been issued, all of which, as they were published, have been dealt with from time to time in our columns. In the interim or first, second, fifth, and eighth reports the purification of domestic sewage discharging into streams received the attention of the Commissioners; the subject of the fourth and seventh reports was the discharge of sewage into tidal waters; while the third, sixth, and ninth reports related to the discharge of manufacturing effluents. The scope of the investigation has obviously been very wide, and as the sittings were continued fresh questions of a special nature were constantly appearing, inviting investigation with the view of suggesting solutions of particular problems which had arisen. The question, for example, of the discharge of sewage into tidal waters in relation to shell-fish pollution, brought to the notice of the Commissioners by the Local Government Board, involved a special inquiry into the number of serious outbreaks of enteric fever, ascribed to the eating of shell-fish obtained from sewage-polluted water. The recommendations subsequently made freed a considerable section of that industry from reproach. The closing of the sewage-polluted layings was amongst the preventive measures adopted and "oysters are in consequence far safer articles of diet than they were before the time of our inquiry," to quote the simple assertion of the final report. Quite recently the general recommendations for securing permanent and effective supervision and control both of sewage outfalls and shell-fish beds received the attention of the Local Government Board, which issued an Order under the Public Health (Regulations as to Food) Act, 1907, giving powers to local authorities to act in accordance with the Commissioners' recommendations.

In their sixth report again, which deals largely with the disposal of liquid wastes from manufacturing processes, the Commissioners recommend that standards of purification which call for no undue increase in the cost of production should be laid down, and that manufacturers should be required to comply with these standards. The Commissioners have considered each kind of trade waste separately, and, as there is a great difference between these wastes, they suggest what they consider a suitable standard for each. These suggested standards will, no doubt, be subjected to criticism by experts; indeed, some of them appear to have been arrived at on very slight evidence. But that is not a supremely important point, for the suggested limits of impurity are only intended as a guidance for a central authority when established. The larger local authorities, at any rate most of them, receive into their sewers trade waste of small volume without conditions, but many small authorities do not allow this, and there are circumstances in which such permission cannot be given as the manufacturers would be infringing riparian rights. Where it is feasible to get rid of trade waste through the sewers the problem is, of course, simplified, and in one of their earlier reports the Commission suggested the conditions under which this should be done, but, notwithstanding a general extension of the system under which purification of trade wastes is undertaken by local authorities, there will remain many cases in which manufacturers must be held responsible for the treatment of their own trade liquids, and it is with such cases as these that the first part of the ninth report deals. In a second part the Commissioners make some observations on the disposal of domestic refuse in rural areas where sewers are not available. In their opinion the water-carriage system is the best, where an abundant water-supply piped to the houses is available. Where, however, a water-carriage system is impossible dry closets may be used satisfactorily under proper supervision. This part of the report does not add very much to our knowledge, but it is interesting because it confirms that the tendency of modern sanitation towards the water-carriage system is a salutary one. In a minority report on the same subject SIR WILLIAM RAMSAY expresses views which are favourable to the extension of dry systems even when a water-supply is laid on in the houses, his reason being that the fruitful nitrogen of domestic sewage ought to be returned to the soil. The great waste of valuable material resulting from the discharge of sewage and slop water through drains is unfortunate, but it would be still more unfortunate if any discouragement of the present tendencies of sanitation should favour the spread of epidemic diseases.

The report contains an abundance of valuable material and represents an enormous amount of painstaking work contributed by recognised authorities on their subjects. It must be remembered, however, that some of this work will, sooner or later, be sure to be discounted in view of the steady and progressive march of scientific application to the problems of the disposal and utilisation of waste matters. The Commissioners' task has spread over 16 years, and the earlier recommendations may require modification, since it is probable that advances have already been made during the period in certain particulars. It is therefore reasonable to expect that the inquiry

will have to be reopened sooner or later and the problems pursued through all their developments. It would, perhaps, be more satisfactory if the subject were taken up by a permanent department at the point where the Commission has now stopped; and, while the present is not the most suitable time to press for the appointment of a new bureau, there are good grounds for believing that the Government is not blind to the advantages which would be gained by the establishment of a department whose duties would be not only to deal with recent problems of sewage disposal but to ensure that full advantage is taken of the very valuable work accomplished in the past.

A Medical History of the War.

WITH a view to the compilation of an adequate medical history of the war a strong consultative body has been formed to consider the lines upon which such a history should be written. The work is intended to be upon a scale commensurate with the importance of the war, which means to say that no such medical history can ever have been contemplated, just as no such war has ever occurred. It will be presided over by the Director-General of the Army Medical Service, and the members have been well chosen in every department. Lieutenant-Colonel O. L. ROBINSON, R.A.M.C., and Sir WILLIAM OSLER, F.R.S., will be responsible for the subdivision of medicine; and Lieutenant-Colonel E. M. PILCHER, R.A.M.C., and Colonel F. F. BURGHARD for that of surgery. Colonel Sir WILLIAM LEISHMAN, F.R.S., and Captain F. W. ANDREWES, M.D., F.R.S., will supervise the subdivision of pathology and bacteriology; and Colonel W. H. HORROCKS and Lieutenant-Colonel W. W. O. BEVERIDGE that of hygiene and sanitation, this subdivision being left to military experts. The subdivision of statistics will be in the hands of Colonel H. P. W. BARROW, R.A.M.C., Dr. JOHN BROWNLEE, and Colonel W. N. BARRON, R.A.M.C.; while the historical subdivision and the secretarial work fall to the charge of Captain F. S. BRERETON, R.A.M.C., and Dr. W. MORLEY FLETCHER, F.R.S., the secretary of the Medical Research Committee under the National Insurance Act, a national body the resources of which have been placed at the disposal of the War Office.

We are sure that all our readers will welcome the information that it has been decided to compile an authoritative history of the medical side of the war. The lessons to be learned are so varied, and may be so valuable, that no pains should be spared by all concerned to make the work as full and accurate as possible. It is a fact that medical histories of past wars have been very disappointing, and no doubt this has been largely due to want of early organisation. And the start made by the new committee is, as a matter of fact, none too soon; for already some records have perished, and others would have similarly been lost if preparation for a sound official history had not caused those responsible for them to regard their trust in a more patriotic and scientific light. For the medical history of the war which is now projected is not designed to narrate only surgical and medical happenings with their statistical deductions. It is intended to give an account of the various experimental researches which are already being carried on in connexion with the maintenance of the health of the forces; and the value of these researches will be enhanced by the due preservation of all clinical records whereby standards of comparison can be instituted. We hope that the results of these various researches will see the light as soon as those concerned in their conduct feel that the conclusions will stand test, for guidance based upon sifted knowledge will be of the greatest service to our military medical officers in clinical treatment now, and perhaps for many a month to come.

Annotations.

"Ne quid nimis."

GOVERNMENT GRANTS FOR MEDICAL PURPOSES.

IN the current session of Parliament the Government will ask the House of Commons to vote £385,000 (compared with £480,000 last year) as the amount estimated to be required in the year ending March 31st, 1916, for the payment of grants towards the cost of the extension of sanatorium benefit to the dependents of insured persons under the National Insurance Act, 1911, and of the treatment of tuberculosis generally. Provision is included in this estimate for the statutory grants under Section 17 of the Act, and also for special grants towards the cost of schemes undertaken by the local authorities (or by combinations of local authorities), with the approval of the departments administering the grants, respecting the treatment of tuberculosis. The grants will be administered in England by the Local Government Board, in Wales by the Welsh Insurance Commission, and in Scotland and Ireland by the Local Government Boards for Scotland and Ireland respectively, and will be calculated on the basis of 50 per cent. of the net cost, as ascertained through the audit of their accounts, incurred upon the schemes by the Insurance Committees or local authorities, singly or in combination, after taking into account the sums applicable thereto out of funds under the National Insurance Act and other receipts in connexion with the schemes. The amount provided will be allocated between the three Local Government Boards and the Welsh Insurance Commission, and issues will be made from the vote to these departments by the Treasury from time to time as required. A vote of £25,000 will also be asked for to provide grants in the year ending March 31st, 1916, to assist in the provision of laboratory facilities with a view to the prevention, diagnosis, and treatment of disease. The money will be allocated, in accordance with a scheme made by the Treasury, to the English, Scottish, and Irish Local Government Boards, for the purpose of distribution by those departments, with the approval of the Treasury, as grants to county councils or sanitary authorities who are

willing to provide or arrange for the provision of laboratory facilities with a view to the prevention, diagnosis, and treatment of disease. The scheme may provide that, if in any area the local authority is unwilling to arrange accordingly, a share of the grants can be allocated to the National Insurance Joint Committee for distribution to the Insurance Committee of that area towards the provision of such facilities and aids. The House of Commons will likewise be asked to vote £2015 for the expenses of the Highlands and Islands (Medical Service) Board for the year ending March 31, 1916, and £42,000 for a grant in aid of the Highlands and Islands Medical Service. The grant in aid will be paid to a separate fund to be called the Highlands and Islands (Medical Services) Fund. Subject to regulations to be made by the Treasury with respect to accounts, audit, and accumulation, the fund will be administered by the Highlands and Islands (Medical Service) Board in accordance with schemes to be approved by the Secretary for Scotland with the approval of the Treasury.

THE DANGERS OF SEA TRAVEL.

THE activity of German submarines and the measure of success attending their attacks upon defenceless merchant vessels have revived the question raised after the *Titanic* disaster as to the extent to which preparation for possible emergency is provided for on board passenger vessels. Would the instruction of passengers beforehand avail to diminish the loss of life inseparable from the sudden destruction of a large ship at sea? Correspondence in the *Times* and other newspapers tends to show that while some experienced travellers and sea-goers believe that more could be done, and ought to be done, by way of antecedent preparation for the worst, others with equal opportunity for forming a sound judgment are impressed with the difficulty of doing more than to give elementary directions to those who are not members of the crew; to allow the officers and crew to take the steps dictated by the circumstances when they have actually occurred appears to them the only practical course. In this matter it is as well to remember that the ships, whose danger is a cause of anxiety to all, may be divided roughly into two classes—those which make comparatively long voyages and those which should reach their destinations in the course of a few hours. In the case of the former, more is naturally possible in the nature of boat drill and instruction as to the routine to be observed than when the contemplated voyage is for a day or so only, or more likely for a night. The chairman of the Union Castle Line, whose views have been published in the *Times*, has pointed out that the nature of the emergency likely to call for the getting of passengers into boats varies at all times so greatly that it is almost impossible to give them any but the most elementary drill or instruction for the actual conditions that may occur. It may be possible, for example, to lower boats from one of the decks intended for the purpose and not from another, and it is of supreme importance that the operation of lowering boats should not be interfered with by the conduct of those to save whom they are intended. Sir Owen Philips is probably quite right when he contends that the boat deck should be free of passengers when the boats are being lowered away, and further when he indicates the saloon as a proper place for the assembling of passengers until preparations have been made for them to leave the ship. Here again, however, the variety of treatment accorded by the officers of German submarines to their victims compels us to see that there may be time on one occasion but not on others for disciplined measures, such as assembling in a given part of the ship, and that some parts of a ship may remain available when others, selected for the purpose beforehand, are not. With regard to life-jackets, there can be no doubt that these should be provided and accessible in sufficient numbers for the use of all, and that all should have some opportunity to learn how to put them on before the occasion to use them in earnest arises. Passengers, however, will differ from one another in their capacity to understand the not very complicated operation of putting on a life-jacket, and in home-coming ships from distant ports the opportunity for instruction will be greater than in others. At all events it can be given, subject to the observation that it is very undesirable to alarm needlessly the more timid travellers by ostentatious preparation for an event which may never occur. Fortunately for the task of life-saving at sea, which at any time may be thrust suddenly upon the officers and crews of our passenger-carrying marine, the circumstances of war must have eliminated from the passenger lists a large percentage of those who at ordinary times travel, and when danger arises are a helpless source of anxiety and responsibility to others. Assuredly this is above all a time at which those who would undertake voyages in order to gratify their curiosity or their love of change, their wish to seek a more congenial climate, or, in general terms, to travel unnecessarily, should be urged by their friends and by the dictates of their own good sense to stay where they are, or, at any rate, not to go down to the sea in ships. Those brave women and men who at the call of duty are daily risking their lives by sea travel are, many of them, on their way to scenes of more imminent danger than is afforded by the enemy's submarine tactics. These can be trusted to act in emergency with coolness and courage and to do their best for the safety of others as well as for themselves.

DR. RIBEMONT-DESSAIGNES ON PAINLESS LABOUR.

IN THE LANCET of August 1st, 1914, a summary was given of a communication to the French Academy of Medicine of the results obtained by Dr. Ribemont-Dessaignes at the Hôpital Beaujon by the administration in labour of a supposed new preparation of morphia, prepared by Paulin, obtained by subjecting the hydrochlorate to the action of fermenting beer-yeast. The result was practically painless labour, without muscular inhibition. In 113 cases there was no accident to the mothers, and though some of the 115 infants (there were two cases of twins) were at first sluggish at breathing, suspension by the feet or insufflation by the mouth was sufficient to determine their revival. Dr. Ribemont-Dessaignes made a further statement, in which he says: "In my publication of July 1 only had the clinical aspect in view. ..... The product supplied to me by Paulin appeared to me to have a different effect on parturient women to that of morphia *in the usual doses*, and seemed at first sight to be justly considered a new substance. ..... The experiments on animals which my colleague

Professor G. Pouchet undertook at my request led him to think that the treatment with fermenting beer-yeast had really modified the toxicity of the morphia, and made it more available for the accoucheur. But subsequent analyses made by several highly competent chemists seem to show that M. Paulin's product was simply hydrochlorate of morphia in solution, but *of the strength of 3·24 per cent.* instead of the usual 1 per cent. strength. Since September last I have only used in my clinique a solution of hydrochlorate of morphia pure and simple, of 3·24 per cent. strength, to which I add a little strychnine and caffeine. I inject 1 cubic centimetre [in the previous communication the injection is directed to be made under the skin of the abdomen]. If the result is not satisfactory I make a second similar injection at the expiration of two or three hours. The clinical results which I obtain are identical with those yielded by Paulin's solution. We are therefore justified in affirming that we may thus attenuate, or even suppress entirely in some women, the pains of parturition without danger to the mother (I have over 200 cases) and with no great risk to the child. The dose of morphia solution which at 1 per cent. arrests labour, at 3·24 per cent. does not; this is the point to bear in mind. It has long been known that the parturient woman tolerates opium well, and the present treatment exemplifies this tolerance. We have yet much to learn about morphia, and all this shows it. The desintoxication of morphia by Paulin's process has still to be proved." This statement by Dr. Ribemont-Dessaignes will be a disappointment to many who have published wild accounts of the procedure.

A SUGGESTION TO THE GOVERNMENT ON THE DRINK QUESTION.

THERE can be little doubt that the Government have got a difficult problem before them in regard to the drink question, but if all that is written is true and if the drinking of immature whisky is chiefly at the root of the mischief, why not stop its sale by enforcing at once a system of compulsory bonding? This would instantly check the sale of cheap whisky because it can only be cheap when it has not been matured. The maturation of whisky, in other words, costs money. In the final report of the Royal Commission on Whisky and other Potable Spirits issued in 1909 the following sentence occurs: "In our opinion, the compulsory bonding of spirits for a prescribed length of time could only be justified if it were established that such a restriction of trade is necessary *in the interests of public health.*" Surely the justification has arrived if it is true that the drinking of immature whisky has led to a serious inefficiency of labour. It is clearly only immature whisky that can be sold cheap. If, say, five years in bond were compelled the consumer would necessarily have to pay a higher price for the spirit, as there is loss by evaporation and there is the cost of storage. It will thus be appreciated that compulsory retention in bond would stop immature whisky drinking, and in many cases the drinking of whisky at all, since whisky would become automatically more expensive, and that without imposing a direct tax. At the same time compulsory bonding would remove the necessity for total prohibition, which would affect many classes quite unfairly. The suggestion that bonding for a period of years should be made compulsory is not impracticable, since in Canada the rule has held for a good many years that no whisky can be sold that has not been maturing in bond for not less than five years, and the regulation has worked to the advantage of the consumer.

POLYGLANDULAR SYNDROME, WITH TUMOURS IN THE SUPRARENAL AND PITUITARY GLANDS.

Dr. John Anderson, the director of the clinical laboratory of the Victoria Infirmary, Glasgow, has published in the March number of the *Glasgow Medical Journal* a case of some clinical and pathological interest, in which after death lesions were found in the pituitary and suprarenal glands. The patient was a woman aged 28 years, who for five years had suffered from indefinite and confusing symptoms, and in whom a development of certain secondary male sexual characters had taken place. Her illness began with vague general symptoms of asthenia and ovarian pain, coupled with irregular menstruation, which during the latter three years of her life passed into complete amenorrhœa. Her complexion changed from pale to red, her body gradually became stouter, and hair made its appearance on the face and body. At the same time a certain degree of proptosis became noticeable and she began to suffer from extreme headaches. On her admission to the Victoria Infirmary in 1913 the chief points to draw attention were well-marked exophthalmos, a florid complexion, and growth of hair in front of the ears and on the upper lip and chin. The patient looked older than her age. It was noted that the skin was harsh and dry and that there were petechial hæmorrhages on the arms and legs. No optic neuritis was found, though the headaches were very severe. While under observation the patient developed spontaneous petechial hæmorrhages on the slightest knock, even touching, so that she was never free from ecchymosis. Hæmorrhage from the bowel occurred several times. Death eventually took place by a gradual asthenia. At the post-mortem examination the thyroid was found to be slightly enlarged and congested. Microscopically it showed changes resembling those seen in cases after castration. Chronic interstitial nephritis was present, and the renal vessels were arteriosclerotic. The suprarenals were slightly enlarged, and in the medulla of the left was a small tumour, which, microscopically, was seen to resemble the structure of the zona fasciculata. The enlargement of the organ was due to an active hyperplasia. The internal organs of generation were senile in character. In the anterior lobe of the pituitary was a small adenomatous tumour. In the rest of the anterior lobe the chromophobe cells had markedly increased at the expense of the eosinophiles. The pars intermedia was abnormally cystic, while the posterior lobe was normal. Dr. Anderson's case resembles in many points one shown by Dr. H. G. Turney at the Royal Society of Medicine in 1913, and also one in Professor Harvey Cushing's book on the pituitary body (Case XLV.). In this instance there was pathological evidence of suprarenal hyperplasia and of both hyper- and hypo-functioning on the part of the anterior lobe of the pituitary. According to the author's view, the pituitary disturbance is the chief factor, and he regards the case as primarily one of hypopituitarism. The influence of the pituitary secretion on the ovary is stimulating in character, and its withdrawal

leads to loss of sexual characteristics and atrophic changes. Its influence on the suprarenal and thyroid, on the other hand, may be regarded as inhibitory, and decrease of its function may allow of a hyper-functioning of these organs, with, in the case of the former, symptoms of hyperadrenalism and development of secondary male sexual characteristics. The association of changes in secondary sex characters and impairment of function of the suprarenal cortex is well established and has received considerable publicity. The term "suprarenal virility" has been applied in France to those female cases which as a result of suprarenal disease take on the secondary sex characters of the opposite sex.

THE PUBLIC HEALTH IN BRITISH COLUMBIA

IT is not unnatural that the public health report for British Columbia, which was recently noticed in our columns,[1] should be, as we said, exiguous, for the Province, with its enormous extent and its population of 400,000, has had no medical officer since February, 1914, when the late Dr. Fagan retired. Since that time the health work of the Province has been done by Dr. Bapty, formerly the bacteriologist, also in general practice, but since he has been on service as a major in the Canadian Mounted Rifles the office has been in charge of a sanitary inspector. A local correspondent tells us that this gentleman is a most competent courteous official, but scarcely able to deal with the problems brought for discussion by medical officers and sanitary engineers. There have been protests from the medical profession against this state of things, and the matter has been mentioned in the election campaign now proceeding, while the situation may entail increasing damage to health in the province. So progressive a colony as British Columbia should at once get herself out of the dark ages by putting the care of her public health in the hands of a medical officer. Dr. Bapty did good work by urgently pressing preventive inoculation against typhoid fever on the population even before the war.

THE EXTRACTION OF NEEDLES.

THE extraction of needles from tissues falls to the lot of every practitioner, and when access to the X rays is not possible, as frequently happens, the operation may be very difficult. In the *Interstate Medical Journal* Dr. P. G. Skillern has published a paper on the extraction of needles without this aid containing many useful hints. For anæsthesia local infiltration with novocain-suprarenin solution usually suffices, but nitrous oxide may be used as well. In the hand the needle is usually driven in by the sewing machine, and since the eye is at the point goes eye foremost. Hence if a thread is carried in no attempt should be made to extract the needle by traction on the thread, not only for reasons that are obvious, but also because the thread forms a valuable guide to the position of the needle. In the foot the needle is also driven in eye foremost, since it is usually an ordinary sewing needle that has been stuck in the floor. The same holds for another common situation—the buttocks. The diagnosis is made by the history, the presence of a punctured wound, abiding pain, and especially by an area of circumscribed induration and tenderness at one spot. The last is important in locating the needle. Dr. Skillern's method of finding a needle without a skiagram depends upon the rigid observance of four rules: 1. The field must be absolutely bloodless. This is attained by exsanguinating the tissues from the fingers or toes to above the elbow or knee by a Martin's bandage. The first turns are uncoiled sufficiently to expose the field of operation; the remaining turns keep the blood back. 2. Follow the black track which leads from the skin puncture to the needle. The success of this step depends on that of the first. 3. Efficiently retract the tissues. 4. Lose no time in searching through the fat, since the needle travels directly to deep fascia or bone, the subcutaneous fat being too soft either to break or stop it. At the moment of impact the elastic fat is compressed and the needle is driven into and caught in a strong grip by the dense palmar or plantar fascia or by bone. When the pressure is released the elastic fat springs back into place and, as it were, swallows up the needle. With the patient properly anæsthetised a free incision is made directly down to the deep fascia. Its length varies directly with the depth of the subcutaneous fat. In some cases time is gained by adding another limb so as to make a T-incision, or even a crucial incision may be necessary. The incision includes the skin puncture and the black track is exposed and followed to the deep fascia. The latter is thoroughly exposed by retracting the flaps. The needle is usually found sticking into the deep fascia. If it has penetrated more deeply this fascia must be incised and retracted. The underlying muscles or tendons are examined each in its own plane. This method of "plane dissection" is very important. If the needle is not in one plane it must be in some other, and each plane must be successively explored. Before each plane is dissected it is palpated with the tip of the little finger or explored with the handle of the knife, which may scrape against the needle. The bones form the last plane, and when they are reached the needle has probably been found. It should be carefully extracted in its own axis, for it is liable to break. By this plan the usual causes of failure—too small an incision and insufficient retraction—are eliminated, and, contrary to prevailing opinion, a skiagram is not always essential.

[1] THE LANCET, March 6th, 1915, p. 505.

THE LATE DR. A. A. W. HUBRECHT.

THE death of Dr. Hubrecht has removed a very considerable person from the zoological world. Among those who have devoted themselves entirely to the purely zoological side of biology—not being concerned, that is, with the more theoretical aspects of that science, heredity, sex, and so forth—Hubrecht has occupied for some years a prominent position. His researches have been mainly along two lines. The best-known work, perhaps because it took up many more years in its execution, dealt with the group of worms usually called nemertina. A reference to any zoological text-book or treatise will at once show the large number of important contributions which this zoologist has made to our understanding of those animals. The genus Hubrechtia remains as a sign of his acknowledged mastery of this group. In more recent years Dr. Hubrecht devoted a great deal of attention to the development of the mammalia; while besides these two main lines of work he contributed memoirs on various biological topics. Dr. Hubrecht was particularly well known in this country by reason of

his frequent visits to the British Association and his thorough acquaintance with English. He contributed many of his memoirs to the *Quarterly Journal of Microscopical Science*, and wrote for the magnificent series of "Reports" obtained by the voyage of H.M.S. *Challenger* the part dealing with the Nemertina.

THE TREATMENT OF SCIATICA.

Two papers of some interest, one on the treatment of sciatica by perineural infiltration with saline, by Dr. William M. Leszynsky, and the other on its treatment by epidural injection of saline, by Dr. Israel Strauss, appear in the *Medical Record* (New York) of Feb. 6th. The perineural infiltration method was first brought prominently to the attention of the medical profession in 1907 by Dr. J. Lange, of Leipsic. It consists in the injection of a large quantity of fluid under pressure directly over the sciatic nerve. Prior to that date injections of sterilised air, similar in principle, had been given with conspicuous success in cases of sciatica, lumbago, &c., in France and elsewhere. For a long time previously, too, injections of cocaine and analogous medicaments had been used in sciatica with good results. The idea of the injection of air, or of fluid in quantity, is that thereby adhesions in the neighbourhood of the nerve are loosened or stretched or broken down. Dr. Leszynsky is of the opinion that, since prompt relief can be obtained in acute and recent cases, where the formation of adhesions can scarcely have taken place, the relief of pain must be due either to blocking of sensory conductivity or to the pressure and absorption of the fluid producing changes in the circulation and nutrition of perineural structures. The technique of the method is simple enough. With the patient lying on his face with legs extended, and a firm pillow under the lower part of the abdomen, the point of exit of the great sciatic from the pelvis is determined in one or other of the usual ways, the skin is painted with iodine, and then the needle of a syringe is pushed in perpendicularly till the sciatic sheath is reached, when the patient will experience a sharp pain radiating down the thigh, or in the heel, or there may be a twitch of the leg or calf. Sterile warm (95° to 100° F.) physiological saline solution is then injected by the syringe, in quantity ranging from 80 to 120 c.c. There may be aching or heaviness or numbness in the limb afterwards, but this rapidly passes off. The interval following the first injection, before another is given, naturally varies according to the degree of relief obtained. Sometimes only one injection is necessary. Dr. Leszynsky is in the habit of waiting from 36 hours to one week before repeating the injection. It is most important to note that it is not intended that the nerve sheath should be entered by the needle, otherwise the forcing of a large quantity of fluid into the nerve trunk may result in a traumatic neuritis. It is recommended that a blunt stylet, projecting 1 millimetre beyond the cutting point of the needle, should be inserted when the latter is once through the skin, to obviate puncturing a blood vessel or the nerve sheath. Dr. Leszynsky does not advise this perineural treatment in every case, but mainly for subacute and chronic intractable cases, and he has used it with success some 160 times. As for the epidural method, Dr. Cathelin, of Paris, recommended it originally, and employed it in various conditions with uniformly good results. For the purposes of epidural injections the epidural space begins at the first sacral vertebra, where the dura mater ends, and it extends down to the sacrococcygeal articulation, where the injections are made. The opening into it is bordered laterally by two prominences, the cristæ sacrales laterales, which are usually easily felt by the finger, and it is covered by the dense ligamentum sacrococcygeum. It lies generally about two centimetres above the end of the gluteal fold. Dr. Strauss has his patient lying on the side, with knees and thighs flexed. After anæsthetising the skin over the foramen with novocaine he pushes through the ligament and into the foramen a strong needle, 1 mm. in calibre, for a distance of about 6 cm., to reach the second sacral vertebra. The injection consists of warm saline. To the first 10 or 20 c.c. of saline is added 0·3 c.c. of novocaine with adrenalin and a few minutes allowed to elapse. Then some 60 or 80 c.c. in all are injected. As a rule the patient feels merely an uncomfortable pressure in his lower spine. In some 19 cases Dr. Strauss has obtained excellent results. He also recommends it mainly in subacute and chronic cases, and holds that it is preferable to perineural infiltration, inasmuch as no injury to the nerves has been reported following on epidural injection. He considers that many cases of sciatica are really due to a root neuritis, a "radiculitis" of the roots of the nerve, and these are the cases more particularly where epidural injections are indicated.

A NEW METHOD OF DIFFERENTIATING BETWEEN EXUDATES AND TRANSUDATES.

HITHERTO the method most usually adopted to distinguish between these two classes of fluids has been that of Rivalta. This observer showed that if a drop of a transudate, which is of a lower specific gravity and contains less cellular elements and less albumin than an exudate, be added to a 2 per cent. solution of glacial acetic acid, the fluid remains clear, but if an exudate be added a bluish trail like a puff of cigarette smoke is seen as the material makes its way down through the fluid. In the last number of *Annali dell' Istituto Maragliano* Dr. F. Morelli describes a new method which seems to yield much more certain results when compared with those obtained by using Rivalta's reaction on the same fluids. This new method is based on the reactions between mercury and different forms of albumin, causing precipitates and forming corresponding metallic albuminates. Dr. Morelli noticed that when drops of fluid obtained from a serous cavity were let fall on a saturated aqueous solution of corrosive sublimate the characteristics of an exudate were shown by the formation on the surface of the solution of a dense, compact coagulum of albumin, yellowish in colour, often remaining adherent and suspended, but sometimes falling in a mass without disintegrating. When, on the other hand, the fluid was of the nature of a transudate a coagulum of albumin formed on the surface which very quickly split up into small particles and fell to the bottom. The only exception to this rule was in the case of pleuritic exudates of a tuberculous nature in which the reaction was always negative, and this uniformly negative reaction furnishes an important indication in etiological diagnosis. Rivalta's reaction did not show this difference

CHINA MEDICAL MISSIONARY ASSOCIATION.

THE biennial conference of the China Medical Missionary Association was held on Feb. 2nd at Shanghai, with Mr. Duncan Main as president, when a discussion was opened on Preventive Medicine in China by Dr. Arthur Stanley, health officer of Shanghai. Dr. Stanley's paper was entitled "How to Initiate Public Health Work in Chinese Cities," and was much to the point. Essentials in Dr. Stanley's opinion are: some form of authority for control of finance, staff appointments, and general policy, such as a municipal council; secondly, a highly trained health officer; thirdly, sanitary law; fourthly, money, which would be mainly obtained from the sale of ordure, house refuse, together with market, slaughter-house, and licence fees. A fifth necessity was a well-appointed central office, including a sanitation laboratory and a staff, which in the near future should be wholly Chinese. Dr. Stanley concluded: "The practical prevention of disease is now reduced to simple terms and scientific precision. The main thing in China would appear to be to prevent waste of effort and to direct energy into the right channels on those measures which mean most." That sanitary work is needed in China is obvious from an excellent paper read by Dr. Wu Lien Teh—well known to many friends in England, made during his Cambridge days and since, as Dr. G. L. Tuck—the Director of the Army Medical College at Tien-tsin, who pointed out that though enteric fever, pneumonia, and most diseases due to alcohol are much rarer in China than in Western lands, yet many preventable diseases, such as small-pox, typhus fever, plague, and leprosy, together with many skin affections, were far too common. Dr. Wu recommended the teaching of elementary hygiene in the schools, the establishment of sanitary boards and social leagues, the members of which should look after district nursing and the distribution of wholesome food, especially milk, and should carry on an educational campaign. Also there should be established at Peking a central public health institute. By these means he hoped that a great and necessary work would be done—namely, the awakening of a sanitary conscience in China. Among other papers we may mention the following. Obstetrical Experience in Futsing City, by Dr. Mabel C. Poulter, who gave an appalling account of native methods in vogue, and showed the very good results from the treatment in hospital. Out of 1291 cases there were 8 maternal deaths, and of these 3 were emergency cases who had been two or more days in labour and had been attended by native midwives. Dr. Logan, of Changteh, communicated his five years' experience in aseptic surgery at an inland hospital. Of clean cases—i.e., those in which the surgeon could exercise control before, during, and after operation, 97·5 per cent. healed by primary union. Altogether the conference was a great success.

MEDICAL MEN AND THE LAY PRESS.

WE are at all times of opinion that medical men writing upon medical subjects in the lay press should exercise great care and discretion in their choice of subjects and in their manner of approaching them. Advice given in popular terms which will tend to the preservation of the public health can be very useful, and information as to the nature of a particular disease if it will have the effect of sending patients in the early stages to seek medical advice—general medical advice, that is, and not advice from Dr. A or Mr. B—may not be amiss in some instances. Nevertheless, to give a bird's-eye view of some form of disease, which shall afford the requisite amount of information without raising doubtful questions, causing needless alarm and anxiety, or leading laymen to think that they know all about the subject discussed, is far from easy, and the attempt to do so should generally be avoided. In any case, the topic selected should be treated cautiously and, above all, seriously, efforts to attract by "bright" pen-pictures, by epigram, or by irony being avoided as sure to be misunderstood. Recently a writer, described as a physician, discussed "kidney disease" in the *Sunday Chronicle*, and was betrayed, we imagine, by his desire to captivate the attention of his readers, into writing a great deal which, for the reasons suggested above, he had better have left alone. Towards the end of his article the following passages occur. We quote them in the form in which they appear in the pages of the *Agents' Journal and Official Gazette*, where they are accompanied by the expression of strong and not undeserved disapproval.

> There is no treatment for Bright's disease, and no drug has the least effect on it. ..... My own advice is, I fear, somewhat unscrupulous. It is to effect as big and as many life policies as you can before you are discovered (*sic*) and then go and follow an Arcadian existence in the South Sea Islands ..... and do your relatives a good turn in the end.

On the face of it this constitutes an invitation or recommendation to attempt a fraud, and a signed article in the *Agents' Journal* so treats it, stigmatising the whole passage as "a slander against, and an insult to, the medical profession," and hoping that "those organs which may be regarded as entitled to speak for the medical profession will, without delay, repudiate and discountenance 'advice' so discreditable and wicked as that we have quoted above." So far as we are concerned, we most willingly repudiate any such advice, and are fully prepared to "discountenance," not only the passages selected for condemnation, but the whole article in which they occur as being entirely unwise and undesirable. We do not think the writer intended to advise the commission of a fraud or even to suggest that its perpetration would be easy. In an earlier part of his article he informs his readers that disease of the kidneys is frequently first discovered when the patient tries to insure his life, not having before been suspected, so that he would be no doubt the first to point out the impracticability of following his own recommendation. We fear that he meant to be "bright" or "smart," and disease is best not treated in that literary manner.

WE regret to report the death of Sir Thomas Clouston, which occurred at Edinburgh on April 19th, within a few days of the attainment of his seventy-fifth year.

Dr. James Alexander Murray has been appointed by the executive committee general superintendent of the Imperial Cancer Research Fund and director of the laboratories.

THE work of the Departmental Committee appointed in March, 1914, to inquire into and report on matters affecting the care of the blind was interrupted by the outbreak of the war, but it is hoped that the sittings will be resumed during this year.

MEMORANDUM ON THE TREATMENT OF THE BACTERIAL INFECTIONS OF PROJECTILE WOUNDS.

BY

COLS. F. F. BURGHARD, SIR W. B. LEISHMAN, F.R.S., SIR B. MOYNIHAN, AND SIR A. E. WRIGHT, F.R.S.,

ARMY MEDICAL SERVICE.

IT is proposed in this Memorandum (*a*) to synopsise the experience obtained in connexion with wounds in this war; (*b*) to supplement this by setting out the chief data which have been furnished by a bacteriological study of the wounds; and (*c*) to lay down certain broad principles of treatment for the guidance of those who have not seen the conditions in the present war, or who have seen only an early or a late phase in the history of the wounds.

The present Memorandum will be followed up, as soon as certain researches are completed, by Memoranda on the Employment of Antiseptics and Vaccines respectively.

I.—CHARACTERS OF PROJECTILE WOUNDS AND BACTERIOLOGY OF THE INITIAL INFECTION.

The wounds made by projectiles are not in any respect comparable to clean-cut, swabbed-out, aseptic operation wounds or to any of the accident wounds seen in civil surgery.

Where the projectile has passed through the flesh there will, in the ordinary case, be a torn and ragged track, with an irregular surface of heights and hollows produced by the hernia of muscle and the retraction of the severed fibres. Where the projectile has come against bone this will be generally splintered, and the track will lead down into widely ramifying crevices between comminuted fragments.

There will also in practically every artillery wound be included foreign matter—a projectile, or shreds of clothing, or fragments of bone, and with these lacerated muscular and connective tissues which will slough. In addition, the wound will be full of blood clot and effused lymph. And lastly, the projectile, when it has traversed soiled clothes or a soiled skin surface, will have carried in microbes, and these will have been sown all along the track.

This deep sowing of microbes, taken together with the blockage of the wound by blood clot, and the not infrequent obliteration of a section of the track by hernia of muscle, will, in the case of any deep or perforating wound, make the effective sterilisation of the wound by antiseptics impossible.

Of the microbes which are carried into the wound the most formidable are the anaerobes and facultative anaerobes. These are found in very large numbers in practically every case arriving at the base from the front.

Three species of microbes here come into consideration. The *streptococcus*, the one microbe which is, one may say, invariably present, is primarily responsible for the suppuration which will supervene in the wound. The *tetanus bacillus*, or a bacillus which is morphologically indistinguishable from this, is present in the pus from a certain proportion of cases. And in practically all the wounds we have also the *bacillus aerogenes capsulatus* of Welch (*bacillus perfringens*). This produces a characteristically offensive, thick, frothy, rusty brown, sometimes almost fæcal, discharge.*

The anaerobic infections of the imprisoned discharges which are here in question, may, if unchecked, lead to graver consequences. The streptococcal infection may lead to an infection of the tissues in the form of erysipelas or deep cellulitis, and it may culminate in septicæmia. The tetanus infection will, if the microbe cultivates itself sufficiently freely and elaborates enough toxin in the wound, give rise to tetanus. And the bacillus of Welch, when it manages to invade the tissues, will generate gas, producing a gas phlegmon and also an obstructive gangrene in the affected limb (so-called *gaseous gangrene*).

II.—MEASURES FOR CHECKING THE ANAEROBIC INFECTION OF DISCHARGES AND PREVENTING THE DEVELOPMENT OF TETANUS, GAS PHLEGMON WITH GANGRENE, AND STREPTOCOCCAL INFECTION OF THE TISSUES.

The rational line of treatment for the prevention of the grave sequelæ which are here in question will be to check at the earliest possible moment the anaerobic infection of the discharges.

The wound ought to be freely opened up. It ought then to be carefully cleansed with an antiseptic solution (*vide* Memorandum on Antiseptics—Therapeutic Employment); all foreign bodies, sloughs, and blood clot (as far as this is possible without risk of hæmorrhage) being carefully removed. Then a very wide drainage-tube which will admit air to the interior ought to be inserted, and, especially in those cases where there is much laceration, steps ought to be taken to promote the outflow of lymph from the walls of the wound (*vide infra* Section IV.).

By such steps we may hope to put an end to the anaerobic infection and to obtain instead of foul smelling, gas impregnated, decomposing discharges a more or less "laudable pus."

Where owing to the exigencies of war conditions it is for the moment impossible to carry out the required surgical measures or where from the nature of the case the wound cannot be effectively drained, it will be specially important to abstain from doing anything which might still further favour the anaerobic infection.

(*a*) Wounds should not be sewn up after operation. We can never be sure that the projectile has not carried in infection, and we cannot under war conditions and during transport count upon the patient being kept, as he should be, under continuous observation. Plugs, except where there is actual risk of hæmorrhage, should never be left behind in the wound, for they bank back the discharges and establish anaerobic conditions. For the same reasons it will be necessary to see that the wound is not wrapped up air-tight, that discharges are not allowed to dry upon the bandages, and that the mouths of drainage-tubes are not blocked by the pressure of the dressings.

(*b*) Moreover, it will, pending the opening up and cleansing of the wound, be very desirable to take certain specific prophylactic measures. By an injection of antitetanic serum we may hope to neutralise any tetanic poison which may be absorbed from the wound.

(*c*) Further, by the injection of a prophylactic dose of a vaccine containing the bacillus of Welch and the streptococcus (issued as *Combined Antigangrene and Antisepsis Vaccine*) we may hope to stave off an invasion of the tissues by these micro-organisms (*vide* Memorandum on the Employment of Vaccines).

* *Probable derivation of these anaerobic microbes.*—All these microbes would seem to be of fæcal derivation. The bacillus perfringens in particular is an inhabitant of the alimentary tract, and it can (by implanting in boiling milk and anaerobic cultivation) be readily recovered from the fæces of men and animals, from earth soiled with fæces, and from the soiled uniform of the soldier.

It must, however, be clearly realised with regard to these measures that they are only temporising methods, and ancillary to such cleansing and drainage of the wounds as may in a particular case have been for the moment practicable.

III.—TREATMENT OF STREPTOCOCCUS INFECTIONS OF THE TISSUES AND GAS PHLEGMON.

When by an unchecked anaerobic infection of the discharges the resistance of the tissues has been lowered, and these have been invaded by microbes, it will be necessary to take immediate steps to stem that invasion.

We have at disposal two different methods of procedure: (*a*) We may take steps to increase the antibacterial powers of the blood fluids; and (*b*) we may lay open and effectively drain the tissues (*vide infra* Section IV.) and so bring back to these their normal resisting power. These methods will be applicable according to circumstances, separately or in combination.

A streptococcal infection which takes the form of erysipelas can practically be always promptly extinguished by an injection of streptococcus vaccine (*vide* Memorandum on Employment of Vaccines) without recourse to any surgical measures.

When a streptococcal infection takes the form of a diffuse cellulitis vaccine therapy will rank only as an auxiliary measure, and the laying open of the infected tissues and the establishment of effective lymph lavage by the method indicated in the next section will be the essential.

What applies to the case of streptococcal cellulitis applies *a fortiori* to all infections of the tissues by the *bacillus of Welch*. In every case these must be opened up and effective lymph lavage induced.

In connexion with the actual surgical measures we have two cases to consider:—

(*a*) Where the infection follows a superficial course manifesting itself in dusky blotchings of the skin and gaseous emphysema in the subcutaneous tissue, it will suffice to open this up freely by incisions carried down to the plane of the muscle. (And it is here thrown out as a suggestion that a more efficient evacuation of the lymph would be obtained if the incisions were disposed transversely instead of axially to the limb.)

(*b*) Where the deeper tissues are diffusely invaded, and where the limb, owing to the internal tension, has assumed a blanched, wax-like appearance, incisions into the subcutaneous tissue would not relieve matters, for the underlying muscle would protrude into and block the wounds. In these eminently dangerous cases it will generally be necessary to amputate. But it may sometimes be possible to save the limb by the free opening up of the deeper tissues and the introduction of large drainage-tubes.

In amputating for diffuse infection of the deeper tissues, or, as the case may be, for a progressive infection of the subcutaneous tissue, it is advisable, inasmuch as it is in these cases essential to obtain an absolute maximum of drainage, to do the flapless amputation—i.e., to cut across all the tissues at one and the same level and to leave the wound completely open.

IV.—GENERAL CONSIDERATIONS IN CONNEXION WITH DRAINAGE AND MEASURES FOR PROMOTING THE OUTFLOW OF LYMPH FROM AN INCISION OR THE INFILTRATED WALL OF A WOUND.

The primary object of all opening up of wounds and infected tissues, in short, of all drainage operations, is, of course, to provide issue for pus and infected discharges.

But the mere provision of an outlet is not enough, nor is it enough to see the outlet so disposed as to allow of gravity carrying off accumulated discharges.

What we are seeking to secure will not have been attained until such lymph as may have become poisonous to leucocytes and impotent upon bacteria has been extracted from the tissues; until that lymph has been replaced by a lymph which is favourable to phagocytic activity and inimical to microbes; and until this last is being "drawn" into the wound and is establishing in it conditions which are favourable to healing.

When anything less than this has been achieved by the use of the knife and, in particular, in the case where in despite of incisions the infective process has advanced, our drainage operation will have failed in its object, and our failure will be attributable to a sealing up of the fenestræ in the tissues and a stanching of the lymph outflow.

The remedy for this is to apply to the wound a hypertonic solution of salt to promote the outflow of lymph.

For ordinary use the best application will be a 5 per cent. solution of common salt combined with ½ per cent. citrate of soda to render the lymph incoagulable. Where citrate of soda, or a similar decalcifiant, is not available a simple 5 per cent. solution of salt will serve. Sea water, this being equivalent to a 2·5 per cent. solution of salt, may also be employed. In dealing with dry and infiltrated wound surfaces stronger solutions of salt (up to 10 per cent.) will be found to resolve the induration and to clean up the wound surfaces much more quickly than weaker solutions.

In the case of deep wounds the simplest procedure will be to pour in the hypertonic solution and then plug lightly with gauze. Superficial wounds may be dealt with by laying on gauze thoroughly soaked in the solution. The limb should then be wrapped in waterproof material to prevent the bed becoming soaked with the very copious discharge, and an application of vaseline will prevent irritation of the skin and stinging on freshly cut skin surfaces.

The "drawing agent" has done its work as soon as it has checked the spreading invasion of the tissues or has cleaned up the dry and indurated wound surface, and this last has clothed itself in bright coral red granulations. The hypertonic salt solution may then be replaced by some simple dressing (*vide* the final paragraph of this Memorandum).

V.—TREATMENT OF THE SUPPURATION WHICH WILL SUPERVENE UPON THE LAYING OPEN OF WOUNDS AND INFECTED TISSUES.

The laying open of the wound or the infected tissue effects, as consideration will show, only the conversion of a more into a less dangerous form of infection, and we are, after our operative procedures, faced with a suppurative infection of our open wound and of our superadded incisions, and have now to check that infection.

It will in practically every case be an infection by the streptococcus combined with staphylococcus. And in very many cases there will be a superadded infection by coliform organisms, in particular by the bacillus proteus.

The therapeutic methods which we have here at disposal are the following:—

(1) *Provision of Satisfactory Drainage and Lymph Lavage.*

The first and most important thing will be to provide in the dependent portion of the wound a

free outlet for the discharges and to secure, when we are dealing with infiltrated wound surfaces, a free outflow of lymph (*vide* Section IV.).

If, by either of these methods or by a combination of the two, we succeed in providing effective lymph lavage for our wound, we shall have very little difficulty with the infection.

But it will in a very large proportion of cases be quite impracticable to obtain all that would be desirable in the matter of drainage, and it is all-important to recognise in connexion with these cases that "conservative surgery," as applied to the wounded, means making, for the purpose of conserving a limb, legitimate sacrifices with respect to drainage. The question, and it is the most anxious and responsible question in all surgical procedures, as to how far one may sacrifice drainage, can only be arrived at by balancing in each particular case the advantage of preserving a limb against the risks of long-continued suppuration and eventual septicæmia.

We require here to have clear conceptions as to what amount of help is obtainable, on the one hand, from *vaccine-therapy*, from the employment of *antiseptics* in the wound, and from *frequent dressings*.

(2) *Vaccine-Therapy in its Application to Suppurating Wounds.*

It is important in connexion with this method of treatment to realise (*a*) that it aims at increasing the antibacterial powers of the blood, and (*b*) that the conditions which determine our success or failure are essentially the same when we employ vaccines as when we set ourselves to combat infections by the aid of the antibacterial power of the normal blood.

Ideally favourable conditions for the successful employment of a vaccine will be given when this is employed in treating a perfectly well-drained wound (let us say, such a wound as that furnished by a flapless amputation); or again, in treating an incursion of a microbe into a tissue where there is a very free lymph flow (let us say, such an infection as erysipelas). Here, by the use of an appropriate dose of the proper vaccine or vaccine mixture, successful results may be confidently expected.

The most unpromising cases for vaccine treatment are those where we are dealing with an unopened abscess sac, or a quite undrained wound, or an old-standing cicatrised tissue infection. Here the microbes are shut off from the blood fluids, and in these cases the utmost we have any right to expect is to prevent an extension of the infection and to ward off septicæmic complications.

In the case here specially in view, that of the imperfectly drained wound, we may expect to obtain by the repeated inoculation of the appropriate dose of the proper vaccine or vaccine mixture, not anything in the nature of dramatic results, but a certain improvement in the local conditions, together with a certain protection against septicæmia.

We may, in short, expect from vaccine-therapy results which will make it possible to employ conservative methods in a larger proportion of cases; to hold on longer to these methods; and to carry them oftener to a successful issue. It would therefore be advisable to carry out vaccine-therapy as part of the routine treatment of suppurating wounds. (*Vide* Instructions issued with Antisepsis Vaccine.)

(3) *Employment of Antiseptics in Wounds.*

It is notorious that the results of the treatment of suppurating wounds by antiseptics are disappointing, and that the reasoning which led to the universal adoption of this therapeutic method was, in point of fact, too unsophisticated.

It was tacitly assumed of chemical agents which acted as antiseptics in watery solution that they would do so also in blood fluids and pus; and that they would also penetrate a certain distance into the tissues and into blood clots. We know now that antiseptics do in these respects very much less than was anticipated.

It was further tacitly assumed that an antiseptic which gave good results with one particular microbe or group of microbes ought to give good results indiscriminately with all. But it is possible that particular antiseptics may be appropriate to particular microbes and groups of microbes; that, for instance, such an antiseptic as peroxide of hydrogen, which has very little effect on ordinary pyogenic microbes, may be specially effective on anaerobic micro-organisms.

But, at any rate, the principle has emerged that in choosing our antiseptics and the strength in which these are to be used we ought to guide ourselves by actual experiments on wounds and on the microbes which come into consideration in connexion with those wounds. And it would be clearly inadmissible in choosing antiseptics for employment in projectile wounds to leave out of sight the fact that anaerobic microbes and their spores have to be dealt with, and that the antiseptics we employ ought to be competent to kill these.

Again, it is still tacitly assumed by practically everyone who employs antiseptics that even if treatment with an antiseptic effects only a partial sterilisation, such partial sterilisation will always be something to the good.

This amounts in point of fact to the assumption that by substituting a smaller for a larger sowing the number of microbes in a culture will always be sensibly reduced.

In reality this will depend upon two factors: (*a*) the nature of the culture medium, and (*b*) the shorter or longer period allowed for the cultivation.

When we are dealing with a culture medium which is ideally favourable to the multiplication of microbes, the smaller sowing will, after a short space of time, give exactly the same number of microbes as the larger.

When we have a culture medium in which microbes develop very slowly the smaller sowing will for a very long time give a correspondingly smaller number of microbes.

When a cultivation medium which is unfavourable to microbes is after a certain lapse of time converted into a medium which is favourable to them, it will not be the larger or the smaller sowing, but the date at which the character of the fluid changes which will govern the result.

We have now to apply these general principles to the case of the cultivation of microbes in wounds; and we may consider first the evolution of events in wounds treated without antiseptics, and then inquire in what respect the use of antiseptics could modify this evolution.

There will after washing out remain behind in every wound a certain quantity of pus. In one case it will be a question of minimal collections left in the shallow depressions of a granulating surface; in another a question of quite large collections held up in inaccessible pockets.

This residual pus will furnish the sowing of microbes, and a culture will be set going as soon as lymph begins to trickle into the wound.

But the new culture will start off very slowly. And for two reasons: first, because the lymph in the condition in which it exudes inhibits nearly all microbial growth; secondly, because we have in the lymph phagocytically active leucocytes.

For a certain time these natural checks of microbial growths will be maintained. The conditions will, however, when the lymph is fouled by an appreciable mixture of residual pus, change rapidly. Phagocytosis will be arrested, and the effused lymph will be transformed into a medium which will be eminently favourable to the multiplication of all manner of microbes. If we now wait for only a few more hours we shall have in the wound a very luxuriant growth.

Coming now to the question how good could come of the employment of antiseptics in wounds, we recognise, in the first place, that we might by these means achieve an appreciably smaller sowing of microbes. Further, it is conceivable that if we were to leave behind in the wound a sufficiency of antiseptic we might obtain from it such a reinforcement of the growth-inhibiting power of the lymph as should more than offset the setback inflicted by the antiseptic in paralysing the phagocytic action of the leucocytes. Lastly, it is possible that an antiseptic, left behind in the wound in sufficient quantity, might prevent the residual pus converting the lymph into a good nutrient medium.

In reality these possibilities do not amount to much. It is clear that that appreciably smaller sowing of microbes which we are working for would be realised only where the whole wound surface can be thoroughly washed with an antiseptic. But these are precisely the cases where the effect of a smaller sowing of microbes would not make itself very much felt, for where the wound is left practically free of residual pus the natural checks of microbic growth would be longest maintained.

With regard to the other possibilities, all that is necessary to say is that they must rank only as possibilities, and that up to the present experiment has not furnished anything in confirmation of the idea that the introduction of antiseptics into wounds would be likely to contribute to the arrest of suppuration.

It must, however, be emphasised, in conclusion, that in the treatment of the wounded in hospital it is essential to look beyond the individual to the aggregate. And even if it were finally to emerge that the employment of antiseptics did not do anything towards the arrest of suppuration in an infected wound, the taking of careful antiseptic precautions, and the washing out of the wound by antiseptic solutions, would none the less be indispensable. For if such precautions were omitted, infective microbes would inevitably be carried from one wound to another, and there would inevitably, by such "passaging," be bred out in hospital very virulent strains of microbes, which would, as in pre-Listerian days, induce all manner of fatal septic infection.

(4) *Frequent and Efficient Dressing of the Wound.*

Coming back from this general consideration to the question of the treatment of the individual infected wound, it will be clear from what has been said above that the frequent and efficient washing out and dressing of the wound will be a factor of dominating importance in the treatment of the infection. Where comparatively long intervals intervene between the dressings, where pus is left behind in the wound, where the discharges are confined by plugs or multiple folds of dressing, and where, in the case of a deep wound, too small drainage-tubes are employed little or no progress will be made. Where large drainage-tubes are employed, where the wound is frequently washed out, where no pus is left behind, and where only a very light dressing is employed, we shall be making progress.

And clearly, so long as a wound is heavily infected, the ideal method of treatment, if only it were always practicable, would be immersion in a bath or continuous irrigation with some aseptic or mildly antiseptic fluid.

When the continuous bath or, as the case may be, lymph lavage induced by hypertonic salt solution has brought the infection under control, what remains of that infection may very often be extinguished by freely exposing the open wound to the air. The part which the drying off of the wound surfaces and the concentration of the discharges plays in the killing off of the residual microbes has not yet been investigated.

NOTE.—The recommendations with regard to surgery which are put forward in the Memorandum have been formulated in consultation with Colonel Sir B. Moynihan and Colonel F. F. Burghard.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Death of Captain John Esmonde, R.A.M.C., M.P.

Captain John Esmonde, Member of Parliament for North Tipperary, died on April 17th from pneumonia, after a few days' illness. He was the son of the late Mr. James Esmonde, J.P., of Drominagh, co. Tipperary, and was educated at Clongowes and Stonyhurst, and subsequently in the school of the Royal College of Surgeons in Ireland. He obtained the Licence of the College in 1884, and in 1891 he became a Licentiate of the Apothecaries' Hall. He practised in various districts in England for some 24 years and then returned to his native county. In 1910 he was elected to Parliament as a member of the Irish Nationalist Party. After the outbreak of the war he accepted a captain's commission in the Royal Army Medical Corps, and was given duty in Ireland. Though of late years his activities were rather political than professional, he did not lose his professional interests. During the passage of the National Insurance Act through the House of Commons he gave cordial help to his professional brethren, who will join with his political colleagues in regret at his early death. He was only 52 years of age.

The Women's National Health Association.

The annual conference of the Women's National Health Association was held last week in Dublin under the presidency of Lady Aberdeen. Discussions took place on the medical inspection of school children, infant mortality, and kindred subjects, and reports were submitted dealing with the various activities of the association.

Cerebro-spinal Meningitis.

Dr. A. Gardner Robb, medical superintendent of Purdysburn Municipal Fever Hospital, Belfast, has issued a circular to the medical practitioners of Belfast urging the importance of early serum treatment in cerebro-spinal meningitis. He appeals to them to send any cases they may wish to

have treated in hospital at the earliest possible moment. He quotes Flexner's collected cases, which show that among those injected with serum between the first and third day of illness the mortality was 16·5 per cent., while if they were injected between the fourth and seventh day it was 23·8 per cent., and after the seventh day the mortality was 35 per cent. In 275 cases in the Belfast fever hospitals before the use of serum the mortality was 72·3 per cent. In 117 cases treated with the serum the mortality has been just under 24 per cent. In the present outbreak of cerebro-spinal meningitis 24 cases were admitted from the city of Belfast; while some of these were sent in quite early, on an average they had reached, when admitted, the fourth day of the disease. Had they been all sent in early the death-rate, Dr. Robb thinks, would have been improved.

A Dispensary Doctor Volunteers.

The Ballymena board of guardians have decided to allow Mr. Alexander Duncan, L.R.C.P. & S. Edin., J.P., medical dispensary officer of Glenwherry district of the Ballymena union, to proceed for military duty at the seat of war, to keep his position open for him, and to pay for a locum-tenent during his period of service.

April 19th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Reform of the Sanitary Service in France.

THE Minister for War has made important reforms both in the personnel and in the organisation of the sanitary service. The region is divided into 21 districts, each of which will in future be under the care of an inspector-general. Dr. Février, who was director of the sanitary service of the trenches around Paris and who has been replaced by Médecin Inspecteur Dziewonski, has been appointed inspector-general of the 4th District at Mans. Dr. Vaillard, former director of the technical committee, has been appointed inspector-general of the Paris district. The Minister for War looks for increased efficiency of the services from this new organisation.

A Japanese Hospital in Paris.

A Japanese detachment of the Red Cross arrived in Paris some weeks ago under the charge of Professor Shiota. The Hotel Astoria in the Champs Elysées has been placed at his disposal. With great promptness 150 beds were installed and are tended by the 21 attendants who accompanied Professor Shiota. The inauguration ceremony was presided over by M. Troussaint, director of the sanitary service at the Ministry of War, accompanied by the Japanese Ambassador.

Window-blind Splints for Fractures.

Dr. Prestrelle, having occasion to put up a very large number of fractures in soldiers, has devised an emergency method for their reduction which has given him excellent results in securing the removal of the wounded to the ambulance or the field hospital with a minimum of suffering and danger from complications. Having frequently found it necessary to insert in the plaster casing, to increase its firmness, pieces of green window-blind (*stores verts*)—blinds, that is, composed of fine fibres of rush held together by latticed threads—it occurred to him to make use of them as splints (without using the plaster). While very rigid in the longitudinal direction they can be made to adapt themselves in the other direction to any surface as desired. With strong scissors they can be cut into the exact length and shape necessary. For a fracture of the leg, after an aseptic dressing of the wound, the limb is surrounded with a good layer of cotton wool, then a piece of blind extending two centimetres below beyond the heel and reaching above to the upper third of the thigh is applied. A roller bandage applied around the thigh to the top of the apparatus and a stirrup spiral wound round the foot secure immobility. For the thigh, in like manner, the blind material is cut so that it reaches the fold of the groin internally and the great trochanter externally, starting from the heel. In fractures of the thigh, when once the patient has been comfortably settled on the stretcher, Dr. Prestrelle attaches a weight or a brick to the foot by means of a cord passing over another cord joining the two handles of the stretcher. He has thus been enabled to keep for a day and a night at the dressing station wounded men with fractured thighs almost entirely free from suffering.

April 19th.

KING EDWARD'S HOSPITAL FUND FOR LONDON.

THE annual meeting of the Governors and General Council of King Edward's Hospital Fund for London was held under the chairmanship of the SPEAKER of the House of Commons at St. James's Palace on April 19th, when the accounts and report of the General Council for the year 1914 were presented.

Sir SAVILE CROSSLEY read a letter from Lord Stamfordham in which the King expressed his deep sense of the loss sustained by the Fund in the death of Lord Rothschild, the honorary treasurer and chairman of the Finance Committee, and cordially approved of the action of the Governors in appointing Lord Revelstoke as Lord Rothschild's successor.

On the motion of the SPEAKER, seconded by Lord IVEAGH, a resolution expressing profound regret at the death of Lord Rothschild was unanimously carried.

The SPEAKER then announced the following appointments: The Hon. Algernon H. Mills, who was already on the Finance Committee, to be a member of the Council, and the Hon. Nathaniel Charles Rothschild to be a member of the Finance Committee, after which

Lord REVELSTOKE presented the accounts for 1914, which were unanimously adopted.

Sir SAVILE CROSSLEY submitted the draft report of the Council, which stated that the total receipts for the year 1914 were £529,885 14*s.* 3*d.*, of which £315,093 10*s.* 11*d.* were contributions to capital, and £214,792 3*s.* 4*d.* receipts on general account. The amount distributed was £140,000, as against £157,500 in the previous year. Although the total distributed was less than in 1913, there was an increase in grants in aid of the ordinary maintenance of hospitals, the reduction being wholly accounted for by a diminution in the claims on the Fund for building expenditure. This diminution was due to the postponement by the hospitals at the outbreak of the war of all schemes not actually in hand or particularly urgent. Of the sum of £140,000 distributed the hospitals received £133,500, the remaining £6500 being distributed amongst consumption sanatoriums and convalescent homes taking London patients. The £133,500 allotted to the London hospitals was directed to be applied as follows: £108,550 to general purposes and maintenance, £12,600 towards the liquidation of debts on maintenance account, and £12,350 for additions and improvements to hospitals and their equipment. Of the £6500 given to consumption sanatoriums and convalescent homes, £3800 were allotted in consideration of the allocation of beds for patients to be sent from certain London hospitals. Since the foundation of the Fund a total amount of

£1,930,416 8s. 5d. has been distributed—an average annual distribution of £107,245 7s. 2d. The contribution of the League of Mercy this year had again reached £14,000. With regard to the future needs of the Fund, the report states that the sum required to be raised during the year, after taking into account income from investments, in order to maintain the distribution of £140,000, will be nearly £60,000; while to reach again the distribution of the three previous years more than £75,000 must be obtained in the year by means of annual subscriptions, donations, and legacies. The total amount received from annual subscriptions and donations during 1914 showed, as compared with 1913, a decrease of £750, while the receipts from legacies (other than the Lewis and Harman bequests) were £19,525 less than the previous year, or £6223 less than the average of the five years 1909 to 1913. The nation, the report continues, will surely realise that the work done by the hospitals, both in the treatment of the wounded and in the providing and training of doctors, nurses, and administrators in the medical service of the army and navy, gives them a special claim on the generosity of the public. The Council view with great satisfaction the successful amalgamation of the Hospital for Diseases of the Throat, Golden-square, and the London Throat Hospital, Great Portland-street.

The SPEAKER moved the adoption of the report, which was seconded by Dr. FREDERICK TAYLOR, the President of the Royal College of Physicians of London, and adopted unanimously.

Other business having been transacted, the meeting terminated.

THE MEDICAL MAN'S INCOME-TAX.

As the season has arrived for the completion of the annual income-tax return, this year to be the basis of a charge at the highest rate ever imposed, the moment is opportune for an explanation of the manner in which the sum to be returned by the practitioner should be arrived at. Official instructions are, it is true, issued with the forms, but to the average professional man they appear to be designed to meet every case but his own.

Repayment of Excess Tax.—Calculation of "Earnings."

It may be remarked in the first place that the past year, 1914–15, is not a closed book so far as the tax is concerned if the profits of a practice have fallen from some cause connected with the war. In such a case an application for repayment of the excess tax may be made to the local surveyor of taxes; but tax will be repaid only on the amount by which the assessment exceeded the average of the profits of the three years, 1912, 1913, and 1914, unless the practitioner has himself been serving in connexion with the war, when the profits of the year 1914 will be taken. Service in connexion with the war includes for this purpose work abroad on behalf of the Red Cross Society, the St. John Ambulance Association, or similar body. In one other case also adjustment may be claimed—that is, where the profits have fallen on account of a change in the ownership of a practice or in the members of a partnership.

The sum to be returned under "Schedule D" is, broadly speaking, the amount of the earnings of the practice after deducting the professional expenses, on the average of the three years 1912, 1913, and 1914 (which may be taken as ending on Dec. 31st, 1914, March 31st, 1915, or other date before March 31st, to which the accounts are usually made up). The "earnings" should in strictness be the fees arising in the course of each year, but it is a recognised custom to take the more convenient basis of the sums actually received each year, a system which obviates the necessity of entering into questions as to the amount of bad debts. It is only in the case of new practices, where the receipts in the first two or three years are not a proper index of the earnings in those years, that the revenue authorities take exception to this system. Where public appointments are held as an addition to a practice a separate return for each under "Schedule E" is usually called for on a blue form, but it is not necessary to make these separate returns if the profits from the appointments are included in the general return of average profits. This course renders unnecessary not only the completion of several returns, but also the separate calculation of expenses for each office and payment of tax on separate assessments, perhaps to various collectors; but care should be taken to send back the blue forms with a note of the address from which the inclusive return has been made. Under this system the income from a new appointment is not returned until it comes into the three years taken for an average. Sums received under the National Insurance Act are in any case regarded as ordinary receipts of the practice.

Expenses.

The expenses that may be deducted from the profits of each year may be summarised as follows:—

Rent, rates, and taxes.—The full amount for premises not used as a dwelling, and up to two-thirds where only partly used for professional purposes. If the practitioner is the owner of his house two-thirds of the income-tax valuation (Schedule A) should be deducted in lieu of rent. Inhabited-house duty may be included in the "taxes," but not income-tax.

Car and carriage expenses, including upkeep, repairs, petrol, licence, car insurance, garage and stable expenses, harness, fodder, veterinary surgeon's bill, and also the cost of replacing car, carriage, or horses. The cost of replacement is required to be based on the sum originally paid for the article replaced unless the sum paid for renewal be less.

Salaries, wages, and board of assistants, chauffeur or coachman, domestic servants, and other employees. In the case of servants occupied partly in household duties an apportionment should be made. The cost of board is usually taken at about 10s. a week and where an outside lodging is provided for any servant the actual expense incurred should be added.

House expenses, including fuel, lighting, repairs, decorations, &c. In the ordinary case it will be necessary to estimate the proportion of these expenses properly attributable to the portion of the house used for professional purposes.

Sundry expenses.—Insurance of servants (employer's liability and Government insurance), special travelling expenses, cost of instruments, books, professional papers, telephone, postages, stationery, and other incidental expenses.

Locum-tenents.—Sums paid to locum-tenents are usually allowed where the recipient is exempt from income-tax or makes his own return, but the expense is frequently disallowed when incurred for the purpose of taking a holiday.

Among the outgoings that are not allowed in computing the profits may be mentioned the purchase of a practice, whether in one sum or by instalments, annuities paid to former practitioners or their widows, sums expended in the setting up of a practice or in the extension of premises, the cost of a first car or carriage, interest on loans, life or sickness assurance premiums, voluntary subscriptions, and, generally expenses not incurred for professional purposes. It is to be observed, however, that in the case of interest and annuities income-tax should be deducted from the payments, so that these outgoings are in effect allowed, and life assurance premiums are treated as a deduction from the assessment. Bank interest on a loan for professional purposes is an exception to the general rule for interest and may be charged as an expense. No sums drawn in the way of salary or interest on capital may be deducted, such sums being regarded as part of the income.

The question of an allowance for the yearly depreciation of motor-cars is a somewhat sore point. The revenue authorities, taking advantage of the fact that the Act allowing depreciation was passed at a time when the use of "machinery" in connexion with a profession (as distinct from a trade) was not contemplated, refuse to make any allowance under this head to others than traders. It is therefore only by means of charging the cost of replacing the car when worn out that the practitioner can in effect obtain reduction on account of the decrease in value year by year.

A further article will deal with the various descriptions of relief that may be claimed and with the manner in which the form of return should be completed to insure all allowances that may be due.

(To be concluded.)

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE undermentioned have been granted temporary commissions as Staff-Surgeons in His Majesty's Fleet:—Dated April 14th: Arthur Edmunds. Dated April 15th: Charles Harley Savory and John Greenlaw Dobson. Dated April 16th: Ralph Burn Boston and Charles Joseph Thompson.

The undermentioned has been granted a temporary commission as Surgeon in His Majesty's Fleet: William Leckie Coullie (dated April 12th).

The following appointments have been notified:—Temporary Surgeons: W. L. Coullie, G. R. Stathers, and C. H. Savory, all to the *Victory*, additional, for Haslar Hospital; G. R. T. Thomson and J. G. Dobson to the *Pembroke*, additional, for Chatham Hospital; and R. B. Boston and C. J. Thompson, both to the *Vivid*, additional, for Plymouth Hospital.

ROYAL ARMY MEDICAL CORPS.

The undermentioned temporary Lieutenants to be temporary Captains: Augustus W. Addinsell, Leonard B. Cane, late Captain, Royal Army Medical Corps, Territorial Force Reserve.

Temporary Lieutenant Frederick J. Stephenson relinquishes his commission (dated April 3rd).

ARMY SERVICE CORPS.

Lieutenant Ernest A. Greenwood, Royal Army Medical Corps (Territorial Force), to be temporary Lieutenant.

INDIAN MEDICAL SERVICE.

The King has approved the promotion of the following officers:—Majors to be Lieutenant-Colonels: Dated Jan. 29th: Algernon Francis Stevens, Clement Henry Bensley, Francis Hammond Watling. Brevet Lieutenant-Colonel Frank Wall, Charles Montague Mathew, John Stephenson, Frank Needham Windsor, Ernest Edwin Waters, Asher Leventon, Arthur Frederick William King, Robert Frazer Standage, Andrew Armstrong Gibbs, Edmund Moritz Illington, and Charles George Webster.

The King has approved the retirement of the undermentioned officer: Major Walter Hulbert Cox, D.S.O.

TERRITORIAL FORCE.

Army Medical Services.

Major Frederick R. Miller, from 3rd London General Hospital, to be Deputy Assistant Director of Medical Services, 2nd London Reserve Division.

Royal Army Medical Corps.

1st South Midland Field Ambulance: Edmund Whichello to be Lieutenant.

3rd West Riding Field Ambulance: Captain William S. Kerr to be temporary Major.

3rd London General Hospital: Wilfred Batten Lewis Trotter and Hugh Morrison Davies to be Captains, whose services will be available on mobilisation.

1st Northern General Hospital: The undermentioned to be Lieutenants: Norman Hodgson, Frederick John Nattrass, Thomas Whitelaw, and Sydney Thompson.

2nd Southern General Hospital: The undermentioned to be Captains, whose services will be available on mobilisation: John Alexander Nixon (late Captain of this Unit), John Roger Charles (late Lieutenant, 1st South Midland Brigade, Royal Field Artillery), Charles Ferrier Walters (late Lieutenant, 3rd South Midland Field Ambulance), Clifford Arthur Moore, Arthur Rendle Short, and Arthur Launcelot Flemming (late Major of this Unit).

2nd London Sanitary Company: Sidney Herbert Daukes to be Lieutenant (dated March 2nd, 1915).

East Anglian Casualty Clearing Station: Major Francis J. Warwick, from Attached to Units other than Medical Units, to be Major, with precedence as in the Territorial Force.

West Riding Casualty Clearing Station: The undermentioned Lieutenants, from the 2nd West Riding Field Ambulance, to be Lieutenants (dated Dec. 31st, 1914): Robert G. Dixon and Hubert W. Symons.

2nd Northumbrian Field Ambulance: William Arthur Benson (late Captain, 8th Battalion, The Durham Light Infantry) to be Lieutenant-Colonel (temporary). John Percy Race to be Lieutenant.

3rd Northumbrian Field Ambulance: Captain Arthur Tinley Sissons, from the Territorial Force Reserve, Royal Army Medical Corps, to be Captain (temporary).

3rd London General Hospital: The undermentioned to be Captains, whose services will be available on mobilisation: Gwynne Evan Owen Williams and Charles Aubrey Pannett.

Eastern Mounted Brigade Field Ambulance: Captain Claudius G. K. Sharp to be temporary Major.

Highland Mounted Brigade Field Ambulance: David Dunn Mackay to be Lieutenant.

3rd Lowland Field Ambulance: George James Linklater to be Lieutenant.

3rd South Midland Field Ambulance: David McVea Fleck to be Lieutenant.

1st Eastern General Hospital: Major Laurence Humphry to be temporary Lieutenant-Colonel.

1st London (City of London) General Hospital: William Farrer Thompson to be Lieutenant.

4th London Field Ambulance: Major Mowbray Taylor, from the 5th London Field Ambulance, to be Lieutenant-Colonel (temporary).

Sanitary Service: Captain Robert Proudfoot, from Attached to Units other than Medical Units, to be Sanitary Officer, Welsh Territorial Division. Frederick Thomas Churchill Linton to be Captain, whose services will be available on mobilisation.

North Midland Casualty Clearing Station: Henry Crook Bevan to be Lieutenant.

Attached to Units other than Medical Units.—To be Lieutenants: Robert Lucius Wood, Lieutenant John S. Hall, from the 3rd West Riding Field Ambulance, and Sidney Hughes.

DEATHS IN THE SERVICES.

Surgeon-General Aylmer Martin Crofts, C.I.E., I.M.S., suddenly, at the Naval and Military Hotel, London, on April 12th. He was born in 1854, and was the son of George Crofts, Esq., of Temple Hill, Blackrock, Cork. He qualified as L.R.C.S. Edin. in 1876 and L.R.C.P. Edin. in 1877, and entered the Indian Medical Service in the same year. He served in the Afghan War of 1878–80 (obtaining the medal), the Egyptian War of 1882 (gaining the medal with clasp and receiving also the Khedive's star), and in the Zhob Valley Expedition of 1884. In 1886 he was appointed residency surgeon at Gwalior, and the young Maharajah was placed in his charge. During the China Expedition of 1900–01 he was senior medical officer of the hospital-ship *Gwalior*. In 1905 he became agency surgeon at Kotah and Thalawar, and later in the year he was appointed to the North-West Frontier Provinces. In 1900 he received the C.I.E.; he was also an Honorary Associate of the Order of St. John of Jerusalem.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN the 96 English and Welsh towns with populations exceeding 50,000 persons at the last Census, 9540 births and 6618 deaths were registered during the week ended Saturday, April 17th. The annual rate of mortality in these towns, which had increased from 19·3 to 19·9 per 1000 in the four preceding weeks, fell, in the week under notice, to 19·0 per 1000 of their aggregate population, estimated at 18,134,239 persons at the middle of last year. During the 13 weeks of last quarter the mean annual death-rate in these towns averaged 19·6, against a corresponding rate of 20·6 per 1000 in London. Among the several towns the death-rate last week ranged from 9·0 in Wallasey, 9·5 in Edmonton, 10·2 in Enfield, 10·4 in Walthamstow, and 10·5 in Darlington, to 26·2 in Wigan, 26·7 in Carlisle, 26·8 in Middlesbrough, 29·5 in South Shields, and 30·8 in West Hartlepool.

The 6618 deaths from all causes were 304 fewer than the number recorded in the previous week, and included 736 which were referred to the principal epidemic diseases, against 826 and 767 in the two preceding weeks. Of these 736 deaths, 426 resulted from measles, 151 from whooping-cough, 63 from infantile diarrhœal diseases, 55 from diphtheria, 28 from scarlet fever, 11 from enteric fever, and 2 from small-pox. The mean annual death-rate from these diseases was equal to 2·1, against 2·2 per 1000 in the previous week. The deaths attributed to measles, which had been 397, 495, and 452 in the three preceding weeks, further declined to 426 last week, and caused the highest annual death-rates of 3·3 in Wolverhampton, 3·6 in Salford, 3·9 in Walsall, 4·0 in West Hartlepool, 4·3 in Merthyr Tydfil, 4·6 in Northampton, 5·3 in Coventry, 5·9 in Hornsey and in Carlisle, and 8·3 in West Bromwich. The deaths referred to whooping-cough, which had been 127, 157, and 167 in the three preceding weeks, fell to 151 last week; the highest recorded death-rates from this cause were 1·2 in Blackburn, 1·7 in Southampton, 1·8 in Merthyr Tydfil, 2·1 in Bootle, 2·4 in West Hartlepool, 2·5 in Tynemouth, 2·9 in Barnsley, 3·0 in Carlisle, and 6·8 in Wigan. The fatal cases of diarrhœa and enteritis (among infants under 2 years), which had been 70, 77, and 67 in the three preceding weeks, further fell to 63 last week, and included 18 in London, 4 each in Liverpool and Manchester, and 3 each in Birmingham, Oldham, and Middlesbrough. The deaths attributed to diphtheria, which had been 58, 69, and 49 in the three preceding weeks, rose to 55, of which 12 occurred in London, 4 each in Birmingham and Liverpool, and 3 in Manchester. The deaths referred to scarlet fever, which had been 31, 16, and 25 in the three preceding weeks, further rose to 28 last week, and included 9 in London, 3 in Liverpool, and 2 each in Oldham and Preston. The

fatal cases of enteric fever, which had declined from 15 to 7 in the five preceding weeks, rose to 11 last week, of which 2 were recorded in Plymouth and 2 in Salford. The 2 deaths from small-pox were registered in Bristol.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had steadily declined from 5035 to 2505 in the 20 preceding weeks, had further declined to 2422 on Saturday last; 263 new cases were admitted during the week, against 301, 253, and 275 in the three preceding weeks. These hospitals also contained on Saturday last 1281 cases of diphtheria, 378 of measles, 621 of enteric fever, and 16 of whooping-cough, but not one of small-pox. The 1761 deaths from all causes in London were 63 fewer than in the previous week, and corresponded to an annual death-rate of 20·3 per 1000. The deaths referred to diseases of the respiratory system, which had been 481, 475, and 466 in the three preceding weeks, rose to 469 in the week under notice, and were 206 in excess of the number in the corresponding week of last year. The deaths from influenza numbered 39, against 65, 45, and 46 in the three preceding weeks.

Of the 6618 deaths from all causes in the 96 towns 198 resulted from different forms of violence and 436 were the subject of coroners' inquests, while 1849 occurred in public institutions. The causes of 51, or 0·8 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in London and in its 14 suburban districts, in Sheffield, Leeds, Bristol, Bradford, and in 51 other smaller towns. Of the 51 uncertified causes, 9 were registered in Birmingham, 8 in Liverpool, 3 each in Manchester and Gateshead, and 2 each in Bury, Hull, Sunderland, Newcastle-on-Tyne, Tynemouth, and Carlisle.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland with an aggregate population estimated at 1,212,380 persons at the middle of this year, 701 births and 515 deaths were registered during the week ended Saturday, April 17th. The annual rate of mortality in these towns, which had been 23·9, 22·9, and 23·8 per 1000 in the three preceding weeks, fell to 22·1 per 1000 in the week under notice. During the 13 weeks of last quarter the mean annual death-rate in these towns averaged 25·4, against corresponding rates of 19·6 and 22·4 per 1000 in the English and Scotch towns respectively. The death-rate last week was equal to 24·1 in Dublin (against 20·3 in London and 22·1 in Glasgow), 21·5 in Belfast, 25·8 in Cork, 12·7 in Londonderry, 13·5 in Limerick, and 22·8 in Waterford, while in the 21 smaller towns the mean rate was 21·7 per 1000.

The 515 deaths from all causes were 38 fewer than the number in the previous week, and included 30 which were referred to the principal epidemic diseases, against 37 and 40 in the two preceding weeks. Of these 30 deaths, 11 resulted from whooping-cough, 5 each from measles, scarlet fever, and infantile diarrhœal diseases, 3 from diphtheria, and 1 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·3, against 2·1 per 1000 in the large English towns. The deaths attributed to whooping-cough, which had been 16, 13, and 15 in the three preceding weeks, fell to 11 last week, and included 5 in Belfast and 4 in Dublin. The deaths referred to measles, which had been 12, 7, and 16 in the three preceding weeks, declined to 5 last week, of which 3 were recorded in Belfast. The 5 fatal cases of scarlet fever were slightly in excess of the average in recent weeks, but showed no excess in any particular town. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 11, 11, and 3 in the three preceding weeks, rose to 5 last week, and comprised 3 in Dublin and 2 in Belfast. The fatal cases of diphtheria were registered in Dublin, Belfast, and Dundalk respectively, and that of enteric fever in Belfast.

The deaths referred to diseases of the respiratory system, which had been 145, 121, and 158 in the three preceding weeks, fell to 119 in the week under notice. Of the 515 deaths from all causes, 159, or 31 per cent., occurred in public institutions, and 10 resulted from various forms of violence. The causes of 15, or 2·9 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the large English towns the proportion of uncertified causes did not exceed 0·8 per cent.

THE Hospital for Consumption and Diseases of the Chest, Brompton, at which special arrangements have been made for the admission of sailors and soldiers of the Allied Forces suffering from consumption, has received a special donation of £1000 from a gentleman who desires to remain anonymous.

Correspondence.

"Audi alteram partem."

ACHOLURIC JAUNDICE.

To the Editor of THE LANCET.

SIR,—The interesting case of acholuric jaundice reported by Dr. W. Harmens in your issue of April 10th (in which it is to be hoped that removal of the spleen may be attended with permanent relief) is doubtless characterised by the usual difficulties which such cases present. In connexion with Dr. Harmens's case, one may well consider the case of Dr. T. R. C. Whipham, fully described in THE LANCET of Nov. 21st, 1914. In Dr. Whipham's case there was bile pigment in the urine and an absence of urobilin, and owing to this exceptional circumstance Dr. Whipham thinks the name of the affection ought to be altered. Now the recent experimental work of Whipple and Hooper[1] seems to have solved one of the main difficulties in connexion with these perplexing cases. These investigators have proved that hæmoglobin can be transformed into bile pigment in the circulation and a true hæmatogenous jaundice induced. Those interested may refer to the original paper. Briefly put, after the production of an Eck fistula and ligation of the hepatic artery, the hæmoglobin of red cells injected into the blood is rapidly changed into bile pigment. When the liver, spleen, and intestines were shut out from the circulation, and a head and thorax circulation only existed, the same thing occurred. The authors consider that the endothelial cells of the blood vessels and other organs can transform the hæmoglobin into bile pigments. In "acholuric" jaundice, therefore, the presence or absence of pile pigment in the urine is non-essential and depends on the amount in circulation.

These observations not only throw some light on acholuric jaundice, but they clear up certain doubts in regard to hæmatogenous jaundice in general. I may perhaps be excused in mentioning that in 1896 I upheld by experimental work the theory of a hæmatogenous jaundice in a paper read before the British Medical Association.[2] I showed that in certain cases the liver might be rendered incapable of secreting bile, but that bile pigments were nevertheless found in the urine, and traced these pigments to hæmolysis by the spleen. The hæmolysis in acholuric jaundice is probably brought about by disturbance of the lipoid envelope of the red corpuscle by a toxic or emulsifying substance, present in the spleen.

I am, Sir, yours faithfully,

Harley-street, W., April 12th, 1915. A. G. AULD.

MENINGOCOCCUS AND DIPHTHERIA CARRIERS.

To the Editor of THE LANCET.

SIR,—With reference to the collection of material from the naso-pharynx uncontaminated by oral organisms, this can be readily made by using a post-nasal cannula which I introduced many years ago and find to be of much practical value.

It consists of glass tubing (10 mm. diameter) bent at a right angle to admit of passage below soft palate into the post-nasal space. Through it a wire

[1] Journal of Experimental Medicine, June 1st, 1913, p. 612.
[2] Brit. Med. Jour., vol. i., 1896, p. 137.

charged with wool can easily be passed. It is quickly and cheaply made by bending a length of glass tubing in the gas flame and then cutting to the desired length (long arm 6 in., short arm ¾ in.) A tongue depressor will help, but it is not essential with an intelligent patient. If used, it may either be removed after introducing the cannula or transferred to the patient's hand. Should the patient prove to be "intolerant" a slight preliminary application of cocaine to the faucial ring is advisable. A drawing of the cannula will be seen in "Diseases of the Ear," Milligan and Wingrave, p. 58 (Macmillan, 1911).

The present importance of the matter is my only reason for drawing attention to a very simple method which personal experience has proved to be of the greatest assistance in identifying meningococcus and diphtheria carriers.

I am, Sir, yours faithfully,

WYATT WINGRAVE, M.D. Durh.,
Pathologist, Central London Throat and Ear Hospital.

Bloomsbury-square, W.C., April 14th, 1915.

STOMACH *V.* HEART IN RELATION TO PRÆCORDIAL PAIN AND SUDDEN DEATH.

To the Editor of THE LANCET.

SIR,—I have read with interest Sir Clifford Allbutt's letter in THE LANCET of April 17th in which he suggests that the case described by Dr. Edgar Lea is "one of syphilitic aortitis with angina and needs no particular 'segmental' or other 'neurosis' to explain it." He speaks of the algesic symptom as of "no clinical use." But algesia, which Sir Clifford Allbutt dismisses as of "no clinical use," has, I think, a way of cropping up in every case of the angina pectoris. In cases in which at first sight I have thought it to be absent, it has revealed itself on closer examination or at a later time. Moreover, the symptom displays distinctive peculiarities. It is fitful in its incidence. One day it appears at the epigastrium, upon another in cervical or brachial regions, and on a third perchance in isolated patches scattered over superficial and deep structures of the thoracic walls. Sometimes the symptom is accompanied by rigidity of muscle and pain, at other times it appears alone. Certain authorities agree in regarding intercostal algesia which appears in connexion with gastro-intestinal troubles as indicating the existence of foci of irritation at spinal centres. Among these I may mention Dr. Head, Dr. James Mackenzie, Dr. Hertz, Sir Bertrand Dawson, and, as a pioneer in this subject, Professor Langley. Further, in the case of the angina pectoris Dr. James Mackenzie and the late Professor G. A. Gibson have referred to the neurosis as secondary to myocardial disorder and as produced by it.

The object of my letter in your issue of April 3rd was to suggest that sufficient grounds exist for singling out this fitful neurosis as the predisposing cause of the angina pectoris and for ascribing it to long-continued gastro-intestinal hypertension or irritation. In this scheme of causation myocardial disturbance is regarded as of secondary significance and as indeed occupying the status of an attendant symptom, or at most that of a remote causal factor, perchance operative in a limited proportion of cases.

I am, Sir, yours faithfully,

H. WALTER VERDON.

Streatham Hill, S.W., April 19th, 1915.

CEREBRO-SPINAL MENINGITIS: MENINGOCOCCI FOUND IN PERIPHERAL BLOOD FILMS.

To the Editor of THE LANCET.

SIR,—I read with interest in your issue of April 10th the account by Dr. Alfred C. Coles of a case of cerebro-spinal meningitis of septicæmic type. What struck me was the absence in this account of any definite evidence that this case was really one of meningococcal infection. From the clinical point of view the report states that there were "no signs or symptoms to indicate the presence of meningitis." The cytological and bacteriological examination of the cerebro-spinal fluid was negative as far as the meningococcus was concerned. The examination of blood films (blood cultures are not mentioned) revealed the presence of cocci morphologically resembling gonococci, but no mention is made of any distinctive staining method having been used as a means of helping in the identification of the cocci; and I have noticed that cocci, such as ordinary staphylococci, which appear as circular cocci if stained by Gram's method with aniline-oil-gentian-violet, often appear as "bean-shaped" cocci, resembling gonococci, when stains of the Giemsa type are used.

When an account of the various forms of meningococcal infection that have occurred during the present epidemic of the disease comes to be written, such cases as the one under consideration will perhaps be cited as evidence of blood-stream infection with the meningococcus, although the clinical and bacteriological evidence brought forward may leave much to be desired, and may falsify statistics for which they may be used. It is obviously desirable, then, that in reporting such cases well-recognised reactions of the organism should as far as possible be looked for and reported on as positive or negative.

I am, Sir, yours faithfully,

Bacteriological Laboratory, St. George's Hospital, S.W., April 16th, 1915. E. L. HUNT.

CERTAIN PECULIAR CRYSTALS FOUND IN CEREBRO-SPINAL FLUID.

To the Editor of THE LANCET.

SIR,—In your issue of April 3rd a letter from Mr. Ernest H. Shaw appeared in reference to my article on the above subject. In this letter he affirms that these crystals were altogether extraneous, and could be obtained by boiling tap water, allowing it to cool, and examining the deposit. He then goes on to state that in "films stained with carbol-fuchsin for tubercle bacilli the crystals retain some of the stain." The crystals I described (as I pointed out) are readily soluble in dilute acids, and therefore on examining a film after the usual Ziehl-Neelsen technique no trace whatever of the crystals remains. I have, naturally, in the ordinary course of my work boiled many bottles, syringes, centrifuge tubes, &c., in tap water, but never have I found as a result crystals at all comparable to those I have described, nor have they previously been seen by any pathologist to whom I have shown them.

It is rather strange that in the same week as the article appeared in THE LANCET I again found identical crystals in a specimen of cerebro-spinal fluid removed by Professor Thomas Sinclair, of Belfast. After reading Mr. Shaw's letter I thoroughly washed the cork and bottle in which

the cerebro-spinal fluid had been sent to me and asked Professor Sinclair to sterilise these again, which he did, using the same technique—water from the same tap and the same steriliser. I centrifugalised the contents of the bottle, but no crystals were found.—I am, Sir, yours faithfully,

Belfast, April 15th, 1915. W. W. D. THOMSON.

DIFFICULT LABOUR AND DENTAL DEFORMITIES.

To the Editor of THE LANCET.

SIR,—I have been for some time past investigating the relationship of difficult labour to dental deformities, and I am wondering whether you would allow me through your columns to appeal for assistance to your wide circle of readers. The cases of particular interest are those of delayed labour in face presentation, breech presentation, and delivery by forceps. I should be grateful for the details of such cases together with models of mouth showing the occlusion of the teeth.

I am, Sir, yours faithfully,

11, Queen Anne-street, W., April 18th, 1915. J. F. COLYER.

THE INHALATION OF CHLOROFORM IN BRONCHIAL CATARRH.

To the Editor of THE LANCET.

SIR,—During the past winter I have been called upon to treat a great many cases of post-influenzal bronchial catarrh accompanied by very troublesome cough occurring in violent paroxysms which are very exhausting for the sufferer. I find that a single deep inhalation of chloroform (from the bottle for instance), retained for a few seconds, almost invariably allays the sensation of tickling in the throat and secures immunity from recurrence for a certain period. I have extended this treatment to cases of phthisis and I find that here too the whiff of chloroform exerts a manifestly sedative action. The method is so simple and so effectual that I commend it for a trial, especially as there does not seem to be any drawback to this application of chloroform. I may mention incidentally that in cases where the cough shows a tendency to become troublesome as soon as the patient goes to bed it can often be cut short by lying prone for a minute or two, after which the lateral decubitus is cautiously resumed.

I am, Sir, yours faithfully,

ALFRED S. GUBB, M.D. Paris.

Aix-les-Bains, Savoie, April 13th, 1915.

CLASSICAL CORRECTNESS.

To the Editor of THE LANCET.

SIR,—I am glad that your reviewer, in his gratifying notice in your last issue of my "Index of Symptoms" agrees to the necessity for a word to express "reflexes" which have no connexion with the reflex arc; but I still prefer parergia to parergon. I have a great regard for classical correctness, and claim a large share in consigning to the lethal chamber that horrible mongrel uricacidæmia.

Parergia is formed on the same lines as synergia, and I am sure that had they felt a need for the word, the Greeks, who made *συνεργία* from *σύν* and *ἔργον*, would not have hesitated to make *παρεργία* from *παρά* and *ἔργον*. I am, Sir, yours faithfully,

RALPH W. LEFTWICH.

Ebury-street, S.W., April 17th, 1915.

"UNPATRIOTIC DOCTORS."

To the Editor of THE LANCET.

SIR,—At the request of some of my clients who have seen a letter in the lay press, with this title, complaining of the lack of patriotism evinced by certain members of the profession, may I, as one with 40 years' experience in the engagement of locum-tenents for medical men, say a word in reply to the complaints. Before the war broke out the fees for substitutes were mostly 5 and 6 guineas, the increase in a great measure being due to the extra amount of work involved and the higher incomes earned owing to the Insurance Act. When the War broke out a large number of those who had been acting as locum-tenents at once offered their services and were accepted and given commissions at a remuneration of, roughly, 7 guineas a week, and consequently the fees paid to those remaining automatically went up to about the same figure, and at the present time a large number of men unable from one cause or another to serve their country abroad are doing so by taking duty at home for those who have gone on active service, and at moderate fees. Personally, I have not come across a single instance of 12 guineas being paid, and my register shows that out of a list of over 600 engagements that have passed through my hands during the last six months (mostly war ones) no fewer than 300 have been at 6 guineas, 235 at 7 guineas, 16 at 8 guineas, and the remainder at lower fees on hospitality terms, &c.

As regards the suggestion to invite those willing to help at reasonable rates of remuneration, I may say that early in the war through letters in the medical papers I invited all able and willing to help to communicate with me, and have met with a most loyal response from medical men up to 70 years of age who are doing their best in their country's need. Many of our allies are also helping, including Egyptians, Indians, Belgians, French, Russians, Japanese, and Greek.

I am, Sir, yours faithfully,

PERCIVAL TURNER.

Adam-street, Adelphi, W.C., April 19th, 1915.

MEDICAL INSPECTION OF SCHOOLS: ANNUAL REPORT OF THE MEDICAL OFFICER TO THE ABERDEEN SCHOOL BOARD.—In his fifth annual report Dr. George Rose, medical officer to the Aberdeen School Board, points out the significance of the coincidence of the advent and growth of picture palaces with an increase of scarlet fever and diphtheria cases. With regard to a recent outbreak of diphtheria, Dr. Rose states that neither the social position of the scholars, the site of the school, nor the ventilation nor method of heating had the slightest influence upon the disease. Among the children attending the public schools from 8000 to 10,000 have five or more teeth absent or decayed, and 27,000 are in need of dental treatment; and apart from the children dealt with at the dental clinic not over 1 per cent. probably will receive conservative dental treatment. Children fed on tea and bread are found to have the worst teeth, while the common statement that oatmeal feeders have worse teeth than others is at variance with the figures obtainable, which support the opposite view. Dr. Rose finds that tea is doing much harm among the young people. Extreme cases of tea-fed children can be picked out infallibly in the course of medical inspection. The lack of subcutaneous fat in the face, the faint lines running from the nose to the chin round the angles of the mouth, the half-frightened air, all tell, he says, of tea-poisoning, and form a type as patent to the skilled observer as is the alcoholic. Not many children suffer from lack of food, but in many cases the quality is unsatisfactory. Though most children are born healthy, there is a large infant mortality due largely to gastric disorders. This is followed in many of the survivors by rickets, the result of improper feeding. Most, if not all, of these disordered conditions are preventable.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THE EXECUTIVE COMMITTEE.

A MEETING of the Executive Committee was held on April 15th, when the treasurer, Dr. Des Vœux, reported upon the financial position of the Fund, and presented the audited statement of accounts up to March 31st last given below.

Relief since March 31st has been granted in several directions, particulars of which were furnished, and clothes continue to be purchased in suitable cases, the outlay in this direction being carefully scrutinised by Mrs. Colebrook.

It will be remembered that at the meeting of the Executive Committee held on March 25th it was unanimously agreed to send a substantial sum to Belgium to meet the urgent needs of Belgian doctors and pharmacists remaining in their own country. This course was adopted after the committee had received detailed information as to the cases, and as to the machinery for distribution which had been adopted by the Aide et Protection aux Médecins et Pharmaciens Sinistrés. A representative of this body attended the meeting of the Executive Committee, showed by documents the way in which the information as to the individual instances had been compiled, and spoke from personal knowledge both of the extremely sad plight of many of our Belgian *confrères*, and of the efficacy of the methods adopted by pharmaceutical inspectors, both in medical and pharmaceutical cases, for testing the correctness of the sad stories. On hearing this gentleman's statement the committee decided to act without delay; hitherto it had not been possible to send money because there was no official body ready to receive it or to account to the committee for its employment. The sum of money was despatched immediately to Belgium. It was sent through the medium of certain banks and with the help of Mr. Herbert Hoover, the chairman of the National Relief Fund, and an eloquent letter of thanks has been received from Dr. Pechère, the chairman of the Aide et Protection aux Médecins et Pharmaciens Sinistrés. The Executive Committee propose to continue their large and definite scheme of expenditure, if the course is justified by reports received from Dr. Pechère's committee as to the employment of the money.

THE FUND AND THE WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

It was decided by the West London Medico-Chirurgical Society some weeks ago to organise a reception in place of the annual dinner so as to enable the President to meet the members in a social manner during his year of office, and at the same time to afford the members an opportunity of contributing to the relief of their professional Belgian colleagues who are suffering so intensely in consequence of the war. A reception will accordingly be held at the West London Hospital to-night (Friday, April 23rd) at 8.30 P.M., when guests, including ladies, have been specially invited. The programme will include war exhibits, short addresses on war subjects (illustrated by lantern slides and pictures), music, and other entertainment. The charge for each ticket, whether for a member, a lady, or other guest, is 5*s.*, and it is hoped that members will subscribe even if they are unable to be present. The whole of the proceeds, after the deduction of expenses, will be transmitted as a donation from the society to the Belgian Doctors' and Pharmacists' Relief Fund. Cheques may be made payable to either of the honorary secretaries, Mr. Oswald Addison, F.R.C.S. (125, Harley-street, W.), and Dr. Reginald Morton (66, Harley-street, W.).

THE WEEK'S SUBSCRIPTIONS.

The subscriptions received by Dr. Des Vœux up to Tuesday evening last, in addition to those previously acknowledged, and not including money collected by the Scottish and Irish Funds, are as follows:—

	£	*s.*	*d.*
Danish Union of Doctors (per Dr. Christopherson, Hon. Sec.) (third donation, total £290 5*s.* 8*d.*)—"Some Young Doctors from the State Hospital"	8	9	9
Dr. R. Ashleigh Glegg...	1	1	0
Lt.-Col. W. E. Scott-Moncrieff, I.M.S. ...	2	2	0
Dr. A. W. Hare	1	1	0
Mrs. Howard, Maidenhead, collected by (per Dr. H. Macnaughton Jones)	8	8	0
Birmingham Local Committee (per Dr. R. Saundby, Hon. Sec.) (sixteenth donation, total £377 12*s.* 3*d.*)—			
Dr. J. Jameson Evans	2	2	0
Bournemouth Division, B.M.A. (per Dr. Eleanor C. Bond, Hon. Sec.) (second donation, total £109 12*s.* 6*d.*)—			
Mr. Frank Belben ...	3	3	0
Dr. W. H. Fawcett ...	2	2	0
Dr. F. Heasman	3	3	0
Dr. R. L. Legate... ...	1	1	0
Dr. C. R. Willans ...	1	1	0
Southern Branch, B.M.A. (per Dr. Jas. Green, Hon. Sec.) (fourth donation, total £48 19*s.* 6*d.*)—			
Dr. Thos. Wright ...	1	1	0
Dr. P. H. Green	1	1	0
Dr. A. E. Bodington...	1	1	0
Dr. C. Peterson Weekes	1	1	0
Maj. E. H. Myles, R.A.M.C.	1	1	0
Dr. J. Ghosh	0	10	6

Statement of Accounts up to March 31st, 1915.

RECEIPTS.

	£	*s.*	*d.*
Donations	8104	1	2
Loan repaid	5	0	0
	8109	1	2
Donations received from March 31st to April 14th	1903	10	0

PAYMENTS.

				£	*s.*	*d.*
Relief				964	10	0
Loans to be repaid				75	6	0
Drugs purchased				245	4	2
Clothes purchased				22	18	0
Administration expenses				36	16	3
Balance—						
Cash at bank ...	266	9	0			
On deposit	6500	0	0			
	6766	9	0			
Less due to Treasurer	2	2	3			
				6764	6	9
				8109	1	2
Relief since March 31st				14	0	0
Clothes				7	16	6

	£	s.	d.
"For a Belgian Chemist's Little Girl," from Betty Mortimer, an English Chemist's Little Girl (A. Mortimer)	0	5	0
Mr. W. F. Beeny	1	0	0
Mr. A. Haynes (collected from a number of Derby Pharmacists) ...	5	0	0
Notts. County Pharmacists Asso. (per Mr. A. H. Bell)—	2	2	0
Collected by Birmingham Pharmaceutical Asso. (per Mr. F. Smith) (seventh donation, total £129 13s.)—			
Mr. F. W. Smallwood	1	1	0
Manchester Pharmaceutical Association, collected by (per Mr. T. Miller)—			
Mr. J. Boor	0	10	6
Mr. J. E. R. Holman...	0	10	6
Mr. A. Marsland	0	10	0
Mr. A. Hershberg ...	0	5	0
Mr. J. C. Kidd	0	5	0
Mr. M. Matz...	0	5	0
Mr. S. Matz	0	5	0
Mr. W. J. Cooling ...	0	2	6
Mr. G. Wilkinson ...	0	2	0
Shropshire and Mid-Wales Branch, B.M.A. (per Dr. A. G. Mackenzie, Hon. Sec.) (seventh donation, total £46 3s. 6d.)—			
Dr. Mathewson	1	1	0
Dr Frederic Barker ...	1	1	0
Mr. Herbert Tilley... ...	10	0	0
Mr. N. H. Martin	5	5	0
Professor H. D. Greenish	5	0	0
Association of Certified Dispensers (Society of Apothecaries of London) (additional, total £16 11s. 6d.) ...	0	7	0

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham-gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Ltd.

THE APPEAL FOR SURGICAL INSTRUMENTS.

The Master of the Society of Apothecaries begs to acknowledge the receipt of surgical instruments kindly contributed by the following donors since the publication of the last list:—

Dr. H. W. Gardner, Shrewsbury; Mr. J. E. Burton, Middlewich, Cheshire; and Dr. A. G. Mackenzie, Shrewsbury.

Obituary.

SIR GERALD BOMFORD, K.C.I.E., M.D. LOND., L.R.C.P. LOND., M.R.C.S. ENG.,

LATE DIRECTOR-GENERAL, INDIAN MEDICAL SERVICE.

WE regret to announce the death of Surgeon-General Sir Gerald Bomford at St. Thomas's Home, London, on April 12th, at the age of 63. He was educated at King's College, London, and graduated as M.B. at the University of London in 1873. In 1874 he obtained the degree of M.D. and in the same year entered the Indian Medical Service, being appointed to the Medical College, Calcutta, first as resident surgeon and afterwards as resident physician and professor of pathology. In the two following years he served with the Perak Expedition, receiving the medal with clasp, and subsequently in 1886 was appointed professor of physiology at the Medical College, Calcutta, and later became its principal and occupied the chair of medicine. In 1905 he was appointed Director-General of the Indian Medical Service, which position he held till succeeded by Sir Charles Pardey Lukis some five years later.

Dr. N. I. Tirard writes: "The announcement of the death of Surgeon-General Sir Gerald Bomford will have been read with great regret by all who knew him. After he entered the army in 1874 he threw himself into his duties with characteristic energy and rarely revisited his old school. As a student he had a very distinguished position, and his fine presence always attracted attention. From early days he was devoted to his professional work, and, although he entered King's College in a year which produced many men who subsequently earned high honours, Gerald Bomford occupied a place in the foremost rank in all class competitions. He was awarded one of the junior scholarships at the end of his first year, and he gained prizes in anatomy and chemistry, and distinctions in several other subjects. In due course he became house physician and for a year before he entered the army he was Sambrooke medical registrar at King's College Hospital. This record of work, however, only exhibits one of the facets of a many sided character. He was one of the most regular supporters of the Medical Society of King's College, and was one of the honorary secretaries during the presidency of Professor William Rutherford, who then occupied the chair of physiology. At these meetings Gerald Bomford could always be counted upon for amusement, no matter what the subject of debate. Gifted with a sonorous voice, with easy fluency of diction, and with a somewhat deliberate delivery, he delighted his auditors with a masterful method of dealing with his opponents. His invective, often turned upon his best friends, never wounded; it served merely to enliven the meeting and to stimulate others to greater exertions. Junior members of the society might tremble, but the disputants went away together on the best of terms, and subsequently carried their friendship through the wards, to the army, and to India. In the steady industry of these early days, in the acquisition of ready speech, and in the understanding of his fellow men Gerald Bomford laid the foundations of his future success in the Indian army, and he left in this country many to rejoice when honours came to him, many to sorrow now that his career is ended."

WILLIAM SANDILANDS HARRISON, M.B., C.M. GLASG.,

LIEUTENANT-COLONEL, ROYAL ARMY MEDICAL CORPS.

LAST week we announced in our Service column the death of Lieutenant-Colonel W. S. Harrison, which took place on April 12th at Bankfield, Haslingden, the residence of his mother, at the age of 43 years. He graduated as M.B., C.M. at the University of Glasgow in 1893.

Colonel Sir W. B. Leishman, in a letter dated from the British Expeditionary Force, says: "By the death of Lieutenant-Colonel W. S. Harrison, the Royal Army Medical Corps has lost an officer whom it could ill spare and for whom, had he lived, high honours and distinctions would most certainly have been in store. There can have been no officer in the corps of his standing who was more universally respected and liked both for his exceptional professional qualifications and his sterling character. A sense of personal bereavement must be strong in all who knew him and read of his death. The writer had the privilege of the closest association with him as a fellow worker in the Royal Army Medical College for many years and was under a heavy obligation to him for loyal and untiring coöperation, both in research and in teaching, and the passing years served but to strengthen a feeling of admiration and respect for a character and intellect of exceptional strength. The research work accomplished by Lieutenant-Colonel Harrison in many lines is of great and permanent value, notably his important share in establishing typhoid inoculation upon a firm and scientific basis; the benefits resulting from this work are being reaped to-day by the army in France. His appointment to the chair of Tropical Medicine at the Royal Army Medical College proved an immense success and furnished an instance of that rare but admirable combination, a clinical observer of exceptional experience and insight, armed with a full practical

knowledge of modern laboratory methods. The number of puzzling and difficult cases on which he was able to throw light and initiate a successful treatment must have been a reward in itself, but those who benefited by his skill, such as the writer and many another officer and man in the army, have good cause to keep his memory green. It was a hard stroke of fate which denied to him the chance of serving his country at this time, and one which he felt bitterly; but the fortitude and calm courage with which he endured his painful illness and faced the inevitable will not readily be forgotten by those whom he honoured with his friendship."

If we add nothing to Sir William Leishman's warm testimony to the character and attainments of his friend it is only because he has said so exactly what we should have desired to say. Colonel Harrison had already made himself a great name in tropical and preventive medicine, and has died before his qualities and merits were known much beyond his immediate sphere of work.

PANTLAND HICK, M.D. LOND., M.B., CH.B. LIVERP.,

HONORARY ASSISTANT PHYSICIAN, LIVERPOOL ROYAL INFIRMARY, ETC.

IN the death of Dr. Pantland Hick, which took place on April 17th, after a few days' illness, from a virulent attack of scarlet fever, the Liverpool Royal Infirmary mourns one of the most brilliant of its medical staff. Pantland Hick received his medical education at the University of Liverpool, when he graduated in 1904 as M.B., B.Ch., with second-class honours, after a distinguished student's career. He won the Lyon Jones scholarship, the Derby exhibition, and the Thelwall Thomas fellowship in surgical pathology. In 1906 he took the M.B., B.S., of the University of London, and in 1909 the M.D. of that University. Two years ago he was appointed honorary assistant physician to the Liverpool Royal Infirmary and subcurator to the pathological museum of the University of Liverpool, prior to which he was honorary physician to the Liverpool Stanley Hospital and assistant physician to the Liverpool Infirmary for Children. He was also a captain in the 1st Western General Hospital R.A.M.C.(T.F.). He was a most successful teacher in medicine at the Liverpool Royal Infirmary, where his clinic was highly prized by the students, with whom he was very popular. A career full of promise for the future has been thus sadly cut short at the early age of 34 years.

A medical correspondent, who was a friend of Dr. Pantland Hick for many years, writes:—

"By the death of Pantland Hick at a lamentably early age the profession in Liverpool is deprived of one of its most brilliant workers, and one whose great promise as a student had already shown the fruits of fulfilment. But great as is his loss to his professional colleagues, it will weigh still more heavily on his more intimate friends. He was as earnest and devoted in his friendship as he was to his work. The performance of his duties was marked by the most painstaking and conscientious qualities; he was ever ready to put his great knowledge and keen insight unreservedly at the disposal of his comrades, and the throng of students and post-graduates at his clinics testified to his ability and success as a teacher. His modest bearing, ready self-effacement, winning address, and sterling professional acquirements made him typical of the kind and gentle physician. Through all his work and scientific achievement there shone the simple, plain faith that is so often seen in the eyes of those we know as good and great. His loss will be deplored by all who knew him, not only as a capable and willing worker, but also as that of a kind, loyal, and honourable man."

WILLIAM THOMAS EDWARDS, M.D. LOND., F.R.C.S. ENG., LL.D., J.P.,

CONSULTING PHYSICIAN TO THE CARDIFF INFIRMARY.

Dr. W. T. Edwards, who died from bronchitis at Cardiff on April 11th, at the age of 93, was one of its most distinguished citizens and a great benefactor to the city, his donations to University College, Cardiff, amounting in all to some £3000.

Dr. Edwards, who was the son of a medical man, was born at Caerphilly on Dec. 6th, 1821. He was the great-grandson of William Edwards, who in the middle of the eighteenth century spanned the Taff at Pontypridd with the largest one-span stone bridge in the world, gaining thereby a European reputation as a bridge-builder. Edwards received his medical education at University College, London. He became a Member of the Royal College of Surgeons of England in 1842 and Fellow in 1879, and took the Licence of the Apothecaries' Hall in 1843. In 1844 he graduated as M.B. at London University, gaining the gold medals in anatomy and physiology, in materia medica and in midwifery. In 1850 he proceeded to the M.D. degree. A life governorship was conferred on him by University College, London, in 1871.

In 1852 Dr. Edwards began that active connexion with the Cardiff Infirmary which lasted until he was appointed on the consulting staff. He was in succession surgeon, consulting surgeon, physician, and consulting physician. In 1902 his jubilee of service at the infirmary was celebrated at a banquet given by his local *confrères*. In 1885 he was President of the British Medical Association on the occasion of its holding its annual meeting at Cardiff.

Dr. Edwards's activities were by no means confined to things relating to his own profession, for municipal and religious movements will enshrine his name in their records as an active and efficient worker. His funeral, which took place on April 15th, showed by its thronged attendance and representative character the general esteem in which he was held.

DEATH OF DR. WALTER LEWIS THOMSON, OF DERBY.—Dr. Thomson died recently at the early age of 40, it is supposed from infection contracted by inhalation in the course of his duty. Dr. Thomson, who was instrumental in solving the mystery of the pork-pie outbreak at Chesterfield a few years ago, was senior assistant medical officer of health and school medical officer for Derbyshire, and was in charge of the county tuberculosis dispensary. He received his medical education at Glasgow University and Cardiff, and graduated as M.B., Ch.B. in 1897, and M.D. (with commendation) in 1904. He took the D.P.H. Cantab. in 1902. He was formerly assistant medical officer of health for Lanarkshire and physician-superintendent of the Fever Hospital, Motherwell.

DEATH OF DR. JAMES HUXTABLE BENDLE, OF BATH.—Dr. Bendle, who was county oculist for Somerset, died with painful suddenness from hæmorrhage at Bath on April 13th. He studied medicine at St. Mary's Hospital, and took the joint qualification of the London Board and the M.B. Lond. in 1898. He was formerly resident medical officer at York Dispensary, and assistant house surgeon, and afterwards house surgeon, at the County Hospital, York. He practised for some seven years at Abbots Bromley, Staffordshire, until his health broke down. Dr. Bendle leaves a widow and two children.

The War.

THE CASUALTY LIST.

Lieutenant M. Burnett, R.A.M.C., is reported killed during the operations in the Persian Gulf. He was formerly house physician at St. George's Hospital, and had been for three years in the Royal Army Medical Corps.

Lieutenant E. Stratford, R.A.M.C., who was attached to No. 8 British Field Ambulance with the Lahore Division of the Indian Expeditionary Force, has died in England from shell wound received at Neuve Chapelle.

Captain E. B. Allnutt is reported wounded during the operations in the Persian Gulf.

THE MEDICAL HISTORY OF THE WAR.

A committee, under the presidency of the Director-General, Army Medical Service, has been formed to provide the necessary coördinating authority for the compilation of an adequate medical history of the war.

In connexion with each of the chief subdivisions of the work, military and civilian members have been appointed, except in the case of the Section of Hygiene, where both members are military.

The constitution of the committee under the presidency of the Director-General is as follows:—

Medicine.

Lieutenant-Colonel O. L. Robinson, R.A.M.C., and Professor Sir William Osler, Bart., M.D., F.R.S.

Surgery.

Lieutenant-Colonel E. M. Pilcher, D.S.O., M.B., F.R.C.S., R.A.M.C., and Colonel F. F. Burghard, M.D., M.S., F.R.C.S.

Pathology and Bacteriology.

Colonel Sir William Leishman, C.B., M.B., F.R.C.P., F.R.S., and Captain F. W. Andrewes, M.D., F.R.S.

Statistics.

Lieutenant-Colonel H. P. W. Barrow, R.A.M.C., John Brownlee, M.D., D.Sc., and Lieutenant-Colonel W. N. Barron, M.V.O., R.A.M.C.

Hygiene and Sanitation.

Colonel W. H. Horrocks, M.B., K.H.S., and Lieutenant-Colonel W. W. O. Beveridge, D.S.O., M.B., R.A.M.C.

Historical and Secretarial.

Captain F. S. Brereton, R.A.M.C., and W. M. Fletcher, M.D., Sc.D., F.R.S.

In each section the members of the committee have been given authority to co-opt for the purposes of the section other persons, and it is hoped that in the various sections the best results of the varied experience now being gained will be selected and arranged for publication in the Medical History, and not left to be distributed in scattered communications published independently by individual observers.

SIDE-LIGHTS ON MILITARY MEDICINE.

An indirect and more or less unforeseen result of the wholesale militarisation that is in progress is the unprecedented opportunity it affords, incidentally, for a sort of medical census of the male population, especially efficient in countries where conscription is in force since this means that virtually the whole male population of the country is medically reviewed and is, in addition, subjected to a series of crucial traumatic and psychical tests. Where conscription runs we have, in times of war, a preliminary examination of those called up for service which enables us to ascertain exactly what proportion of males between 18 and perhaps 50 years of age suffer from the various disabling diseases and infirmities comprised in our nosology—statistical elements not procurable in any other way. Of even greater interest is the information that warfare affords concerning the vulnerability to disease of the fighting elements and the degree of protection provided by sanitary measures, including vaccination and seropathically induced immunity. Already we have learned much. The subjects of heart disease, for instance, are shown to be capable of vastly more resistance to fatigue and exposure than we should *a priori* have expected,[1] though no doubt to the detriment of their subsequent prospect of life. Dr. Legueu in the *Journal des Praticiens* of March 20th, 1915, writes an interesting article on the prevalence of urinary incontinence and vesical neuroses among the combatants, a wholly unexpected manifestation of nervous commotion. But most interesting of all perhaps are the remarkable effects of cerebral commotion, apart from physical injury, induced by high explosives. Fine robust men, excellent experienced soldiers, are found to break down under the terrible stress of a heavy bombardment and develop neurasthenia, melancholia, or traumatic hysteria.[2] In some the hebetude and melancholic taciturnity only last for a few days and disappear when the subject is set to some manual work that distracts his attention, but in others it is of a more permanent character. Cases are on record of more or less prolonged amnesia associated with curious disturbances of the functions of speech and vision. One man, for instance, could not pronounce familiar words, though he could spell them, and though he understood them when spelled he failed to grasp their meaning when pronounced. The intellectual status of the victims puts simulation out of the question, the troubles being far too complicated and consistent for a layman to reproduce for weeks at a time. In a somewhat different category are cases in which a trifling skin wound has induced functional paralysis of adjacent muscles or even of one side of the body, only to be cured by "suggestion" in one form or another, and in this direction high-frequency currents, by virtue of their awe-inspiring phenomena, have proved singularly successful among French troops. The tremendous strain thrown on the nervous system by prolonged exposure to the hardships of life in the trenches and heavy shell fire starts into being any latent tendency to somnambulism, and some extremely thrilling tales are told of the aberrations observed during the first few nights following a heavy fight. Cases of downright insanity have been extremely rare, at any rate among the French troops, in fact, so far, not one has been placed on record. To useful work which the medical returns of the war are opening up for statisticians imagination can hardly set bounds. It is of the utmost importance therefore that these returns should be well kept.

[1] THE LANCET, Feb. 13th, 1915, p. 335.

[2] Dr. Noel Fiessinger, Journal des Praticiens, Feb. 13th, 1915; THE LANCET, March 27th, 1915, p. 663.

SOLDIERS' AND SAILORS' INSURANCE.

The Insurance Commissioners have recently issued a reminder (Leaflet No. 29, Revised) as to the benefits to which seamen, mariners, and soldiers are entitled under the Insurance Acts. They have also sent letters to the clerks of Insurance Committees (Circular 53/I.C.) giving information as to a scheme for dealing with soldiers discharged from the army suffering from tuberculosis, the same arrangements applying, if occasion arises, to seamen or mariners belonging to Approved Societies. The matter is dealt with in connexion with the demand for hospital space for other purposes and in order to provide for the taking over of tuberculous soldiers as promptly as possible by Insurance Committees when they need continued residential treatment. As committees may not have beds ready when wanted, and as it will not be possible to postpone the date of the soldiers' discharge from the military hospitals, the Commissioners will coöperate by taking beds in private institutions in which the soldiers in question will be placed temporarily, pending preparations for their reception by the appropriate committees. In respect of these cases a sum will be available to the committee out of the Central Sanatorium Benefit Fund under Article 24 of the Payments to Insurance Committees Regulations, 1914, and payments thus made to committees will be supplemented by the Commissioners by grants out of the Grant-in-Aid of £100,000, provided by Parliament on the Supplementary Estimates 1914–1915, the effect being that committees will be credited with a possible sum of £20 for each case taken over by them, deduction being made to meet the expense of the temporary provision referred to. The circular makes recommendations and gives full particulars of the procedure which will be adopted when cases of soldiers suffering from tuberculosis and needing continued institutional treatment arise. It explains that the basis of the proposed grants has been framed with reference to the fact that the cases in respect of which they are payable have all been certified by the military authorities to require some period of residential treatment.

GERMAN MEDICAL PAPERS.

Further contributions to German papers have reached us which show that the medical problems of the war are being carefully considered. Of typhus fever we learn the following:—

Typhus exanthematicus, although almost confined as yet to the prisoners' (Russian) camps and those who have had to do with them, has taken heavy toll of distinguished men, of whom Professor Cornet, author of a standard German work on tuberculosis, is the latest victim. Among the Russian prisoners themselves the disease appears to be but slightly fatal, Dr. Lindner (Linz) recording no death among 300 cases in a camp of 9000 persons, while 24 per cent. of infected attendants in the same camp succumbed. In Tsingtau figures had previously been given by Fürth as follows: Mortality among Europeans 25 per cent., among the Chinese themselves 11 per cent. only; in accordance with Römer's law, the smaller the distribution of an infection among a population the greater the case mortality. No suggestions for treatment are at present forthcoming, and the diagnosis may be very difficult. Professor Klemperer and Professor Zinn, who attended Professor Jochmann, who also has died of this fatal disease, state that he had irregular fever, headache, and sleeplessness ten days after visiting cases. A septic throat followed, with bronchitis and heart weakness, and on the sixth day a transient roseola on the chest and abdomen. The spleen was enlarged to percussion, but a Widal reaction was negative, and the blood contained no typhoid bacilli. The roseola returned on the ninth day and became petechial. Death occurred on the eleventh day from heart failure. Special attention is due to the fact that of the three physicians in attendance and of the other seven persons, nurses and family, in close attendance on the patient, not one became infected. Jochmann himself was entirely convinced that a perfectly clean patient is no danger to his surroundings, and records in his book the observation of a Serbian doctor who placed other patients in the same bed with a washed typhus patient clad in clean linen without any of them taking the infection.

It is becoming increasingly certain that lice are the sole carriers of the virus from patient to patient, and it was another victim of the disease, Professor v. Prowazek, of Hamburg, who showed that a single louse from an infected patient could convey infection to an ape. On the other hand, Curschmann says that infection can be conveyed by straw, clothes, &c., months old when all the lice and nits must long have died out; but in this case the explanation is advanced that the virus has a certain tenacity, possibly a resting form, which is, as such, not infectious for us but only for the louse, which takes the virus up and activates it, acting to some extent as a sensibilisator—conveying it then to man by its bite. The association of the louse with typhus is no new idea, but was described by the Hungarian (typhus has been known for centuries as the "Hungarian disease"), Tobias Coberus, at the beginning of the seventeenth century, who thought the louse had a psychic effect upon the human subject and who recommended garlic externally for prophylaxis, others at that time using marjoram, mint, cloves, and other ethereal oils for the same purpose. Of more modern remedies, Professor Blaschko, as an alternative to naphthalene where the smell is objected to, suggests mercury as the only effective alternative, preferably in the form of hydr. c. cret. (1 : 4), carried to the amount of 30 grm. in a bag in each trouser pocket. Professor Sigmund Fränkel, whilst experimenting with oil of anise, was accidentally supplied with anisol, which is phenyl-methyl-ether, and this proved to be from six to eight times more poisonous to lice than any other remedy, being at the same time one-twelfth as poisonous to man as phenol, and causing no eczema or irritation of the skin. The only analogy he could find was di-methyl-resorcin, a single drop of which under a bell jar kills frogs in three to five minutes. On a large scale the Bavarian Home Office recommends the employment of SO_2 as a disinfectant, best prepared by burning a mixture of CS_2 90 per cent., water 5 per cent., and methylated spirit 5 per cent., 2½ kilos for every hundred cubic metres of room space. For prophylaxis the attendants should closely fit their garments at the wrist and ankle, and use strongly smelling ethereal oils or naphthalene, bearing in mind, further, that in the experience of Professor Kraus, of Buenos Aires, infection may be avoided by thorough ventilation.

THE BRITISH RED CROSS SOCIETY.—The fourth annual report (1914) of the County of London Branch of the British Red Cross Society (founded Dec. 9th, 1909) shows that on the outbreak of war all divisional secretaries returned at once from holiday leave. Large numbers of enrolments took place, and Colonel Gimlette's scheme of registering promised articles for the equipment of auxiliary hospitals was at once put into action, and serving centres were established all over London. The War Refugees' Committee was rendered aid in housing, and the following homes and hospitals were accepted by the society: Weir Hospital, Balham, 50 beds; Hospital for Officers, 24, Park-street, 19 beds; 9, Cedars-road, Clapham Common, 36 beds; 78, Onslow-gardens, 25 beds; Cedar Lawn Hospital, 36–42 beds; Oakhurst, Erith, 20 beds; Territorial Hospital, White City, 40 beds. Eight detachments were mobilised, of which one has since been demobilised. By means of boxes large sums were collected. A member is selected from each of the detachments for service as women orderlies at the King George Hospital, Mrs. Scott Gatty, commandant of No. 50, being in charge. A useful work is the systematic inquiry made among the London hospitals for missing officers and men. The present strength of the branch comprises 70 detachments with a total of 2711 all trained to work. Each of the divisions corresponds with the area of one or more metropolitan boroughs—viz., St. Marylebone, Greenwich and Woolwich, Camberwell, Hammersmith, Hampstead, West Hampstead, Islington, City of

Westminster, Kensington, Chelsea, Battersea, St. Pancras, Paddington, Hackney and Stoke Newington, Lambeth, Putney and Fulham. To these Poplar has lately been added. All report good work done. The finances of the branch were fortunately put on a more satisfactory footing early in 1914, so that in place of a deficit, as always formerly appeared, the branch had a balance in hand at the end of the year amounting to upwards of £374.

The East Lancashire branch of the British Red Cross Society has undertaken the whole of the work in connexion with the transport of wounded soldiers, British or Belgian, sent to Manchester for treatment. This involves the meeting of hospital trains, usually during the night, and the subsequent transfer of patients to and from the many military and Red Cross hospitals in this area. Since the outbreak of the war this transport section has met 84 trains and transported 12,306 sick and wounded soldiers to hospital. In addition many wounded have been conveyed from one hospital to another, which brings up the total number of transports carried by this society to about 20,000.

Lieutenant-Colonel Sir Courtauld Thomson has been appointed, with the approval of the Admiralty and the War Office, head of a commission to be sent to Malta and the East by the Joint War Committee of the British Red Cross Society and the Order of St. John, and will shortly proceed to the Mediterranean.

VACANCIES FOR MEDICAL OFFICERS.—We are asked to state that there are vacancies for five medical officers prepared to serve abroad in the 2nd and 3rd Line Welsh Border Mounted Brigade Field Ambulance. Pay and allowances as in the Regular Army, together with outfit and camp kit grants. Full particulars can be obtained on application to Major D. C. Leyland Orton, Officer Commanding, Thomas-street, Chester.

UNIVERSITY OF ABERDEEN AND THE WAR.—At the spring graduation at the University of Aberdeen many of those graduating were in khaki and several of the professors wore the uniform of the Royal Army Medical Corps. Owing to the large number serving with the colours the number of undergraduates present was much smaller than usual. The Principal, in his address, stated that over 1100 graduates, alumni, and students were serving with the forces, of whom some 150 were actually under fire at the time of speaking. With regard to medical students, Principal Smith said that on service or under training in the Officers' Training Corps there were 368 students, or rather more than 50 per cent. of the whole. Of the rest a certain number were under age, some applied for commissions or sought to enlist, and some had not the necessary physical qualifications. The executive of the General Medical Council and the present heads of the Military Department of the War Office had strongly advised many medical students to complete their curriculum in view of the needs, both civil and military, in the immediate future. The Principal also read the roll of dead, seven in number, which included the names of Dr. Thomas Peppé Fraser, Colonial Medical Service; Surgeon William Mellis Mearns, R.N.; Lieutenant-Colonel W. H. Gray, I.M.S.; and Lieutenant Angus Forsyth Legge, Medical Company, Singapore Volunteer Corps.

LICE IN THE TRENCHES.—We are asked to state that on Tuesday afternoon, April 27th, between the hours of 3 and 5, Mr. M. E. MacGregor will give a demonstration at the Wellcome Bureau of Scientific Research, 10, Henrietta-street, Cavendish-square, W., on Lice and their Prevention, to which all interested are invited. The subject is one which, while of paramount importance at the present juncture in relation to the war, occupies an important place also in regard to civil life, and a good attendance may therefore be reasonably expected, including many general practitioners. It should be of particular interest to those practising in the densely populated areas.

INDIAN WARD OF THE ST. JOHN AMBULANCE HOSPITAL BRIGADE.—Her Highness the Mahendra Maharani Sahiba of Panna has made a donation of Rs.1000 to the Indian Ward of the St. John Ambulance Brigade Hospital now being organised on behalf of the Indian Council by the Order of St. John of Jerusalem. This amount is included in a contribution of Rs. 5000 to the St. John Ambulance Red Cross War Fund, the fifth contribution sent by Mrs. Spence, wife of the Political Agent at Nowgong, Bundelkhand. Major Perry, I.M.S., commanding an Indian Stationary Hospital, says that the St. John Red Cross gifts were exceedingly useful and much appreciated. Ahmed Saneh Pasha, an Arab notable of Basra, has contributed Rs.1500 to the St. John Ambulance Association in India to assist the work carried on by that society on behalf of the wounded, a striking proof of local Arab sympathy with the British cause.

ROYAL HOSPITAL FOR SICK CHILDREN, ABERDEEN.—This hospital suffered on the outbreak of war from the mobilisation of most of the members of the medical and surgical staff, and the lady superintendent was also called up for duty. The directors made the best arrangements possible under the circumstances, and by the willing and efficient coöperation of the reduced staff, and the assistance of others, they believe that the work has been efficiently overtaken. Owing to the very exposed position of the hospital, in the event of the bombardment of the city, the directors felt that the inmates should, if possible, be removed to a safer place. The trustees of the late Mr. Thomas Ogilvie generously offered the use (rent free) of Kepplestone House, Rubislaw, where the patients were removed some time ago, since when out-patients have, owing to facilities granted by the board, been treated at the Aberdeen Royal Infirmary.

WOUNDED ALLIES RELIEF COMMITTEE.—We are informed that the Wounded Allies Relief Committee has recently extended its good work in supplying Belgian *réformés* soldiers with artificial limbs. A number of cripples are now assembled at the committee's No. 2 Home for Disabled Belgian Soldiers (45, Courtfield-gardens) for this purpose, and many have already been examined by Sir William Collins, K.C.V.O. Food for this home has been promised by the National Food Reform Association, while Dr. Bridges is acting as honorary medical adviser, and Mr. C. St. Aubyn-Farrer is giving massage and electrical treatment. Gifts of clothing and of French and Flemish books will be gratefully received by Miss Humby, matron at the home. A very successful branch of the committee's work is the training home at Pontefract, where many thousand men are under care and supervision. Queen Alexandra recently wrote to the committee thanking them for the trouble they had taken in guiding one particular case to a successful issue. The committee have been advised by telegram that the advance party of its typhoid hospital unit recently sent to Serbia has arrived at Nish, and, at the request of the Serbian Government, is proceeding to Kragujevac, where the hospital, consisting of 100 beds, will be established. Ten other nurses, under the charge of Miss Edith Mackenzie, house sister of the City Fever Hospital, Birmingham, will shortly follow. All communications for the committee should be addressed to Mr. Albert Van der Velde, honorary hospital superintendent, Sardinia House, Kingsway.

THE OPEN-AIR TREATMENT OF TYPHUS FEVER.—Sir Clifford Allbutt, in a letter to *The Times* of April 15th, refers to his experience during the Leeds outbreak of typhus fever during the "sixties," of which the mortality was very heavy. In consequence of a remark of the late Professor Rolleston, of Oxford, concerning the "Irish fever," that "not a few of the patients carried out into the hedge bottoms as moribund, nevertheless recovered," he was led to test open-air treatment as a principle of cure. He had the staff warmly clad and all the windows taken out or screwed firmly open. The mortality of all cases fell promptly from 16–17 per cent. to 6–7 per cent., and the infective activity was much reduced. He therefore strongly urges that in Serbia every typhus fever patient should be carried out into the open air, in wet weather with a waterproof coverlid for sufficient protection, and that every attendant should wear glazed cotton overalls and protect the neck and hair in like manner.

SOCIETY OF MEDICAL OFFICERS OF HEALTH: SCHOOL MEDICAL SERVICE GROUP.—A meeting of this group was held at the society's offices, 1, Upper Montague-street, Russell-square, W.C., on April 10th. The financial position of the past year was considered and officers were appointed. The reply of the council of the parent society to the petition of the group for the formation of a school medical service branch was considered and a resolution was passed with the object of improving the representation

of the group on the council. The recent statement of Sir Alfred Keogh, Director-General, Army Medical Services, War Office, and the circular of the Board of Education as to the urgent need for more medical officers,[1] were considered, and it was unanimously resolved:—

That the School Medical Service Group notices the grave appeal issued by the War Office for more medical officers, and urges members of the School Medical Service to respond to this appeal.

Members of the service having any difficulty in obtaining leave of absence or a substitute should apply to the honorary secretary of the group (Dr. A. Ashkenny, 2, London-road, Basingstoke). A joint paper by Dr. C. W. Hutt and Mr. G. Finch was read on School Medical Service Work and the British Army, pointing out the relation of such work to the physique of the army.

SHOP ASSISTANTS AS SOLDIERS.—The Early Closing Association is the oldest trade institution in the country, and has been supported by both employers and employed in its efforts to solve the vexed question of hours of labour. The board of management are anxious to maintain the best traditions of the association's past history by recognising in a practical manner the response of shop assistants to the call of the war. The patriotism of those shopkeepers who have encouraged their men to enlist, and who in many cases are looking after the dependents during the absence of the breadwinner, deserves the gratitude of the country. The authorities of the association suggest that the most practical way of showing this would be to improve the conditions of labour in shops, pending legislative protection, ere the men return to civil work. When victory has been gained the country will need, more than ever, a strong and hardy race to uphold national prestige, and this cannot be secured by working young men and women in shops until undue hours. The association will assist soldiers to obtain employment after the war is over, and a register is being prepared of those who propose to return to shop life. Captain Albert Larking, secretary of the Early Closing Association (3, Tudor-street, London, E.C.), will be glad to hear from shop assistants now on active service, whether at home or abroad, as to their intentions in this direction.

THE SAMARITAN HOSPITAL, BELFAST.—At the annual meeting of this hospital held on April 12th it was reported that the matron (a sister under the Territorial Branch) was called up for war service in August last, and as a result the committee decided to close the hospital, and since Jan. 1st, 1915, it has been given over to the Ulster Volunteer Hospital as an annexe for wounded soldiers.

THE King and Queen have promised to attend Madame Clara Butt's subscription concert to be given at the Albert Hall on May 13th in aid of the British Red Cross and the Order of St. John. Mr. Kennerley Rumford, who has been serving with the Red Cross Society since the war started, has promised to take part. The expenses are being met by Madame Clara Butt.

THE Derbyshire County Council have decided to offer to the War Office the services of their entire medical and nursing staff for administering a hospital of 300 beds, provided the Local Government Board will sanction the temporary use of the new tuberculosis sanatorium at Chesterfield, which cannot be staffed at present through the scarcity of medical men.

THE War Office announces that the establishment of military hospitals on a large scale for convalescents as well as for the sick and wounded will preclude the necessity for accepting further offers of private houses for these purposes.

A MOTOR ambulance, to be known as the City of London Russian Cavalry Ambulance, has been presented by Mr. Walter Winans to the Russian Red Cross Society.

ACCORDING to a German wireless from Berlin, dated April 15th, the Emperor has decorated Professor Roentgen with the Iron Cross on the occasion of his 70th birthday, thus acknowledging his eminent services to surgery.

[1] THE LANCET, April 17th, p. 836.

Medical News.

WARREN TRIENNIAL PRIZE.—The Warren triennial prize, which was founded by the late Dr. Jason M. Warren in memory of his father, is awarded to the best dissertation on some subject in physiology, surgery, or pathological anatomy, the arbitrators being the physicians and surgeons of the Massachusetts General Hospital. The subject for competition for the year 1916 is on some special subject in physiology, surgery, or pathology, and the dissertation must be in either English, French, or German, typewritten, and suitably bound. Work that has been published previously will not be considered in competition. The name of the writer must be enclosed in a sealed envelope, on which must be written a motto corresponding with one on the accompanying dissertation. Any clue given by the dissertation, or any action on the part of the writer which reveals his name before the award of the prize, will disqualify him from receiving the same. The amount of the prize for the year 1916 will be $500. Dissertations will be received until April 14th, 1916. A high value will be placed on original work.

THE LATE JAMES BANNERMAN CUNNINGHAM, M.B., C.M. EDIN.—Dr. Cunningham died on April 4th at Ruyton, Salop, after a very brief illness from septicæmia, at the age of 62. He entered the profession in the late "seventies," and was at first in practice at Prestonpans, East Lothian. Subsequently, after a short sojourn in Canada, he practised at Tongue, Sutherlandshire, and finally at Ruyton, where he spent the last 23 years of his life. Dr. Cunningham was a man of robust health, was keenly addicted to outdoor pursuits, but was ever conscientious in the discharge of duties. He was very popular among the working classes, with whom he had a happy manner; though sometimes brusque and given to plain speaking if occasion arose, he possessed a natural kindliness and sincerity which found him many friends wherever he went. He leaves a widow and ten children, most of whom are grown up. The funeral was largely attended.

THE MENTAL AFTER-CARE ASSOCIATION.—This association, which is the only charity of its kind in the United Kingdom, assists poor persons convalescent or recovered from institutions for the insane from all parts of the country, and the report of the council for the year 1914 shows a record of much good work. During 1914 applications on behalf of 373 persons were received, of whom 225 were women and 148 men. This, however, does not represent all the cases dealt with in the year under notice, as nearly 200 old cases also received attention. As a result of the war greater calls upon the services of the association may be expected, and the charitable public will no doubt see that the really useful work which is done by this charity is not hampered by lack of financial support.

NORTH STAFFORDSHIRE MEDICAL SOCIETY.—The first meeting of this new society took place on March 25th, at the North Staffordshire Infirmary, when cases and specimens were exhibited. The following are the officers of the society:—President: Dr. John Russell. Vice-President: Dr. F. Shufflebotham. Treasurer: Mr. Jonathan Steele. Secretaries: Mr. R. H. Dickson and Mr. E. E. Young. Members of council: Dr. C. F. Daly, Dr. T. Basil Rhodes, and Dr. W. Mitchell Smith. The meetings are announced to take place monthly, except July, August, and September.

ERRATUM.—In the pass-list of the University of London (Second Examination, Part II.), published in THE LANCET of April 10th, p. 780, the † and ‡ (indicating distinction in anatomy and pharmacology) were unfortunately overlooked in the case of Emily Catherine Lewis, and the ‡ (distinction in pharmacology) from the names of Bruce Maclean and Benjamin Thomas.

ACCORDING to an official memorandum, it is expected that the inquiry undertaken by the Royal Commission on Venereal Diseases will extend at least until the end of March, 1916.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Parliamentary Session.

PARLIAMENT resumed its sittings on Wednesday, April 14th. Business is mainly confined to matters connected with the war. For the meantime sittings will be only upon Tuesdays, Wednesdays, and Thursdays, but special arrangements are being made to expedite the procedure relating to the notice required for questions to Ministers. Although these will be concentrated into three days a week, it does not follow that they will be less numerous in the aggregate than they would be had the House sat on the normal occasions.

Antityphoid Inoculation.

Mr. TENNANT, the Under Secretary for War, again states that he is not in a position to announce any change of policy with reference to the inoculation against typhoid fever of officers and men in the army.

Several questions have been asked within the past week in the House of Commons which are framed so as to suggest a desire to discredit inoculation, but in every case they have elicited nothing from the representative of the Government to show any intention to depart from the present policy.

The late Dr. John Esmonde, M.P.

Dr. JOHN ESMONDE, whose death is announced, was one of the few medical members of the House of Commons. He sat for several years as one of the Nationalist members, and was popular in all parts of the House. During the controversies connected with the passing of the National Insurance Act he took a close interest in the conduct of the negotiations concerning the position of the medical profession. He was a few months ago gazetted a captain in the Royal Army Medical Corps, and took a very active part in recruiting for the various branches of the naval and military services.

Mental Treatment Bill.

Mr. CECIL HARMSWORTH, the Under Secretary for Home Affairs, has introduced a Bill in the House of Commons "to facilitate the early treatment of mental disorder of recent origin arising from wounds, shock, and other causes." It was read a first time.

The House of Commons and Alcoholic Liquors.

In the House of Commons on Tuesday, April 20th, a motion was moved expressing the opinion that during the continuance of the war no alcoholic liquors should be sold in the refreshment-rooms or at the bars attached to the House. The debate showed the existence of a considerable amount of divergent opinion, and for that reason it was adjourned. But it has to be added that the amount of alcoholic liquors consumed at the House is now surprisingly low. It is stated that the total liquor bill for the two days on which the House sat last week was only 4*s*. Meantime no declaration has been made to the House of the policy which the Government will propose to pursue in the country with reference to the problem of drink as it affects the output of munitions of war.

The Finance of the National Insurance Act.

Some decreases in the sums which have to be found by Parliament for financing the operations of the National Insurance Act are noted in civil service estimates for 1915–16. There is a fall of £600,689 on the vote for the National Health Insurance Joint Committee. The large reduction of £350,000 on subhead relating to sickness benefit (women) is partly due to the fact that in the Supplementary Vote taken in July, 1914, provision was made for two years, and partly to the fact that, as the subhead was then put in the form of a grant-in-aid, an unspent balance can be applied in diminution of the requirements for 1915–16. There is a decrease of £95,000 on the vote for the treatment of tuberculosis (special grants), it being anticipated that the sum of £385,000 will be sufficient to provide all grants which will be earned. The sum voted for pathological laboratories in July, 1914, has not been spent, and a reduced provision of £25,000 has been included for 1915–16.

HOUSE OF COMMONS.

WEDNESDAY, APRIL 14TH.

Cerebro-spinal Fever.

Sir J. D. REES asked the Parliamentary Secretary to the Local Government Board whether local bodies had been warned of the necessity for dealing with overcrowding, want of ventilation, and uncleanliness in areas surrounding London, in view of the existence and possible spread of spotted fever and of the recent report thereon of Dr. A. Newsholme,[1] medical officer to the Local Government Board; and, if not, whether he would now issue a warning letter.—Mr. HERBERT LEWIS replied: Dr. Newsholme's recent Memorandum on cerebro-spinal fever was sent on Feb. 22nd to the sanitary authorities of all districts in England and Wales, with a circular in which the Local Government Board say that they trust that the council and the medical officer of health will take such steps as may be necessary on the lines indicated in the Memorandum should any case of the disease occur in their district. The Memorandum states that in view of the well-known association of cerebro-spinal fever with overcrowding, insufficient ventilation, and uncleanliness, the avoidance of these conditions becomes a matter of prime importance. A copy of the circular and the Memorandum was also sent to each medical officer of health.

Medical Men as Prisoners of War.

Lord ROBERT CECIL asked the Under Secretary for Foreign Affairs whether there were still any British medical men held as prisoners of war by the Germans; if so, how many and what steps the Government proposed to take in order to procure their release.—Mr. PRIMROSE replied: It is believed that there are only three British subjects who claim to be entitled to release as medical men now detained in Germany. Representations on their behalf have been made through the United States Ambassador. According to the latest information the number of military doctors still detained in Germany is 50. Of these, 35 have been officially reported as prisoners through the United States Ambassador and 15 unofficially. The White Paper shows what steps have been taken to obtain the release of these prisoners.

Lord ROBERT CECIL: Is it a fact that prisoners in hospital in Germany, either as patients or doctors, are not allowed to write to their relatives freely; and, if so, what are the reasons for this treatment?—Mr. PRIMROSE: I have no information to show that doctors in hospital are treated differently from other prisoners of war in the matter of correspondence. Inquiries are being made through the United States Ambassador on this point.

Lord ROBERT CECIL: Is the honourable gentleman not aware that a particular doctor who has to attend British prisoners in a certain hospital has through the commandant of the hospital informed his wife that he is not allowed to write?—Mr. PRIMROSE: I will make inquiries about that. I have not heard of it.

THURSDAY, APRIL 15TH.

War Casualties.

Replying to Mr. HOGGE, Mr. TENNANT, Under Secretary for War, stated that the total of British casualties in the war up to April 11th inclusive was 139,347.

Certifying Sickness in Ireland.

Mr. GINNELL asked the Chancellor of the Duchy of Lancaster to say on what scale doctors were paid for certifying sickness under the National Insurance Act in England; what sum that was estimated to amount to annually; what the payments for this service amounted to annually; the Irish branch of the British Medical Association having consented to accept that scale of payment, would he say why it had not been paid; what independent medical approval, if any, the Irish Insurance Commissioners had for the treatment of the sick which their different system of certification involved; and, seeing that out of £97,100, Ireland's equivalent for this purpose, only £44,000 were spent on it, would he say whether the balance of £53,100 went into the Irish National Health Insurance Fund or was wholly lost to Ireland.—Mr. MONTAGU answered: There is no separate payment for the provision of certificates of incapacity for work under the National Insurance Act in England. The Exchequer grant of 2*s*. 6*d*. per insured person (equal to about £1,300,000) is a grant-in-aid of medical benefit generally, and this grant secures not only the provision of certificates but also other services in connexion with medical treatment and attendance. Any such comparison as that suggested by the honourable Member is, therefore, misleading. As regards the fourth and fifth part of the question I would refer the honourable Member to the full reply which I gave to similar questions on March 3rd.[2]

Convalescent Sailors and Soldiers.

Lord ROBERT CECIL asked the Under Secretary for War what steps the Government were taking to secure the restoration to health of convalescent sailors and soldiers discharged from hospital on sick leave, and what provision was made for soldiers and sailors invalided out of the service in consequence of illness resultant from active service.—Mr. TENNANT said in reply: Soldiers on discharge from hospital are as far as possible sent to convalescent hospitals or homes. Sick furlough limited to one week is only given in cases where the men are ready for duty or light duty. Soldiers requiring medical aid while on furlough may apply for it to the nearest military station or, in cases of emergency or if residing at a distance from a military hospital, to a civil

[1] THE LANCET, Feb. 27th, 1915, p. 452.

[2] THE LANCET, March 13th, 1915, p. 576.

practitioner. The new scale which will be adopted as a result of the recommendation of the Select Committee is under consideration. The question of allowing further hospital treatment for discharged soldiers who have been granted disability pensions is under consideration.

TUESDAY, APRIL 20TH.

Territorial Medical Officers.

Sir CLEMENT KINLOCH-COOKE asked the Under Secretary for War whether the recent order arranging for the promotion to captains of all lieutenants in the Royal Army Medical Corps included Royal Army Medical Corps' lieutenants of the Territorial Forces, and, if not, would he consider the advisability of their inclusion.—Mr. TENNANT replied: No, sir, it is not intended to extend the arrangement referred to to the Territorial Force as the circumstances are not the same.

The Inoculation of Soldiers.

Replying to Mr. W. THORNE, Mr. TENNANT said: The privilege leave given to inoculated soldiers who were shortly proceeding to the front, to enable them to visit their homes, was not extended to men who declined to be inoculated, and who were consequently selected to remain in this country. The manner in which an officer or soldier who seeks redress for any grievance is laid down in the Army Act, and any soldier or officer who adopts other methods, is guilty of a military offence.

Rum Rations.

Mr. MOLTENO asked the Under Secretary for War, whether, in view of the general consensus of opinion in regard to the desirability of restricting the use of alcohol, and particularly of ardent spirits, the Secretary of State for War would consider the desirability of ceasing to issue rum in large quantities to the troops at the front.—Mr. TENNANT answered: The conditions under which rum is issued to the troops at the front have been fully explained on previous occasions. It is not proposed to make any change in the issue.

Medical Officers in the Navy.

Mr. GEORGE TERRELL asked the Secretary to the Admiralty whether medical officers who had withdrawn from the service previous to the war and had received a gratuity on the scale laid down in the regulations now had deductions made on their pay as representing interest on the amount of such gratuity; and whether, in the absence of any authority for the making of such deductions, he would give instructions that all such officers are to receive their pay in full.—Mr. MACNAMARA wrote in reply: It is a long-established rule in the Navy that an officer in receipt of an annual retiring allowance should cease to draw that allowance on becoming entitled to full pay, &c., during re-employment whether in peace or war. The same principle is applied to officers who received their retiring or withdrawing allowance in a lump sum, and an amount representing the annual value of this gratuity is accordingly abated from their active service emoluments.

Notification of Births Act.

Sir WILLIAM BYLES asked the Parliamentary Secretary to the Local Government Board whether having regard to the effect of the war on the statistics of births and deaths he would consider whether, either by legislation or administrative order, the Notification of Births Act, 1907, now optional in character, could be made compulsory.—Mr. HERBERT LEWIS answered: The Notification of Births Act imposes no duty on local authorities to follow up investigations made under it, and unless this work is undertaken, the chief value of the Act is not secured. The Department have generally considered that it is preferable to persuade local authorities to adopt the Act and to carry out health visiting and other measures for the benefit of persons whose cases are brought to their notice in pursuance of the Act, rather than simply to put the Act in force compulsorily. I may add that the Act is now in force in respect of about 75 per cent. of the total population of England and Wales, and that the question of the adoption of the Act is now under the consideration of several areas.

WEDNESDAY, APRIL 21ST.

Panel Practitioners and Military Duty.

Mr. CHARLES DUNCAN asked the Secretary to the Treasury what, if any, arrangements were being made to secure the administration of medical benefit under the National Insurance Act in cases where panel practitioners had engaged themselves for military duties.—Mr. ACLAND replied: In the circumstances referred to, the Insurance Committees have to be satisfied that as satisfactory arrangements as are possible, having regard to the heavy pressure on the medical profession, are made to provide for the continued discharge of the panel duties of absent medical men by means of locum-tenents or through their colleagues acting as deputies.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

CASSIE, ETHEL, M.B., Ch.B. Edin., has been appointed Temporary Medical Officer of Health and Schools Medical Officer for Clackmannanshire.

DESMOND, M. P., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Silvereagh District of the county of Cork.

HENDERSON, J. M., M.B., Ch.B. Glasg., has been appointed Medical Officer to the Barrow-in-Furness Board of Guardians.

JONES, CHARLES TRICKEY, L.R.C.P. Irel., has been appointed Deputy Medical Officer for the Ilfracombe District by the Barnstaple Board of Guardians.

MACBEAN, A. F., M.B., Ch.B. Aberd., has been appointed Chief School Medical Officer for the county of Aberdeen.

SINCLAIR, R., M.B., Ch.B. Aberd., has been appointed Assistant Medical Officer for the county of Aberdeen.

STANLEY, DOUGLAS, M.D., has been appointed Professor of Therapeutics in the University of Birmingham.

WALLACE, WILLIAM, M.B., C.M. Glasg., L.D.S., has been appointed Lecturer on Dental Anatomy and Physiology in the Anderson College of Medicine.

WEST, H. O., M.D., B.S. Lond., has been appointed Tuberculosis Officer in connexion with the establishment of a Tuberculosis Dispensary at the Metropolitan Hospital, Kingsland-road, N.E., for the boroughs of Hackney and Stoke Newington.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor.

ANGLO-SERBIAN HOSPITAL, Urnjatchka Benja, Serbia.—Surgeon.

BATH, ROYAL UNITED HOSPITAL.—Resident Medical Officer.

BELGRAVE HOSPITAL FOR CHILDREN, Clapham-road, S.W.—Resident Medical Officer for six months. Salary at rate of £100 per annum, with board, residence, and washing.

BENENDEN, KENT, NATIONAL SANATORIUM.—Assistant Medical Officer. Salary £120 per annum, with board and laundry.

BETHNAL GREEN INFIRMARY, Waterloo-road, N.E.—Assistant Medical Officer. Salary at rate of £280 per annum, with apartments, board, and washing.

BIRKENHEAD BOROUGH HOSPITAL.—Female Senior and Junior House Surgeons. Salary £180 and £150 per annum respectively, with board and laundry.

BIRMINGHAM CITY EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary at rate of £300 per annum.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer, unmarried. Salary £250 per annum, with apartments, attendance, &c.

BOOTLE BOROUGH HOSPITAL.—Senior and Junior House Surgeons. Salary £150 and £130 per annum respectively, with residence, board, and laundry.

BOURNEMOUTH, ROYAL VICTORIA AND WEST HANTS HOSPITAL.—House Surgeon for six months. Salary £100 per annum, with board, lodging, washing, &c.

BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £120 per annum, with board, residence, and laundry.

BRADFORD POOR-LAW UNION, FOR ST. LUKE'S HOSPITAL AND UNION HOUSE.—Assistant Resident Medical Officer, unmarried. Salary £250 per annum, with rations, apartments, and washing.

BRISTOL GENERAL HOSPITAL.—Second House Physician, House Surgeon, Casualty House Surgeon, and Resident Obstetric Officer, all for six months. Salary at rate of £150 per annum, with board, residence, &c.

BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—Junior Resident Officer. Salary £100 per annum, with board, rooms, attendance, and laundry.

BRISTOL ROYAL INFIRMARY.—Three House Surgeons. Two House Physicians, and One Obstetric and Ophthalmic House Surgeon. Salary at rate of £120 per annum, with board, apartments, and laundry.

BURNLEY, VICTORIA HOSPITAL.—House Surgeon. Salary £135 per annum, with residence, board, and washing.

BURY INFIRMARY.—Senior and Junior House Surgeons. Salary £175 and £150 per annum respectively, with board, residence, and washing.

BURY ST. EDMUNDS, WEST SUFFOLK GENERAL HOSPITAL.—Resident Medical Officer, unmarried. Salary £150 per annum, with board, lodging, and laundry.

BUXTON, DERBYSHIRE, DEVONSHIRE HOSPITAL.—Assistant House Physician for six months. Salary £100 per annum, with apartments, board, and laundry.

CANTERBURY MENTAL HOSPITAL.—Assistant Medical Officer unmarried. Salary £250 per annum, with board, lodging, washing, and attendance.

CARDIFF, KING EDWARD VII.'S HOSPITAL.—Resident Surgical Officer. Salary £160 per annum, with board, laundry, and apartments.

CARLISLE NON-PROVIDENT DISPENSARY.—Resident Medical Officer. Salary £200 per annum, with apartments (not board).

CARMARTHEN, JOINT COUNTIES ASYLUM.—Temporary Second Assistant Medical Officer. Salary at rate of £200 per annum, with board, lodging, washing, &c.

CITY OF LONDON LYING-IN HOSPITAL, City-road, E.C. — Resident Medical Officer for four months. Salary at rate of £50 per annum, with board, lodging, and washing.

COLCHESTER, ESSEX COUNTY HOSPITAL.—Resident Medical Officer. Salary £160 per annum, with board, washing, and residence.

DERBY COUNTY BOROUGH.—Temporary Tuberculosis Officer, unmarried. Salary £400 per annum, with board and residence.

DERBY, DERBYSHIRE HOSPITAL FOR SICK CHILDREN.—Female Resident Medical Officer for six months. Salary £200 per annum.

DERBY, DERBYSHIRE ROYAL INFIRMARY.—House Physician and Casualty Officer. Salary £250 per annum, with board, residence, &c.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—House Physician for six months and House Surgeon for four months. Salary at rate of £75 per annum each, with board, residence, and washing.

GRAVESEND HOSPITAL.—House Surgeon. Salary, with board residence, and washing.

HALIFAX COUNTY BOROUGH.—Temporary Assistant Medical Officer of Health. Salary at rate of £300 per annum.

HALIFAX ROYAL INFIRMARY.—Second and Third House Surgeons, unmarried. Salary £120 and £100 per annum respectively, with residence, board, and washing.

HAMMERSMITH INFIRMARY AND WORKHOUSE, Ducane-road, Wormwood Scrubs, W.—Second Assistant Medical Officer. Salary £170 per annum, with board, lodging, washing, and attendance.

HARROGATE INFIRMARY.—Resident House Surgeon. Salary £100 per annum.

HEMEL HEMPSTEAD, HERTS, WEST HERTS HOSPITAL.—Resident Medical Officer. Salary £150 per annum, with rooms, board, and washing.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton. —House Physician for six months. Salary 30 guineas.

HULL ROYAL INFIRMARY.—House Physician, unmarried. Salary £105 per annum, with board and apartments. Also Assistant House Surgeon. Salary at rate of £100 per annum, with board and lodging. Also Casualty House Surgeon. Salary at rate of £80, with board and lodging.

INDIAN MEDICAL SERVICE.—Ten Commissions.

INGRESS ABBEY MILITARY HOSPITAL, Greenhithe.—House Surgeon. Salary £350 per annum, with board, lodging, and washing.

INVERNESS, NORTHERN INFIRMARY.—House Surgeon. Salary £150 per annum, with board, &c.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Medical Registrar. Salary at rate of 40 guineas per annum.

LONDON SKIN HOSPITAL, 40, Fitzroy-square, W.—Honorary Assistant Physician or Assistant Surgeon.

LONDON THROAT HOSPITAL, 204, Great Portland-street, W.—Registrar to assist at Out-patient Clinics.

MACCLESFIELD, CHESHIRE COUNTY ASYLUM, Parkside.—Junior Assistant Medical Officer. Salary £250 per annum, with apartments, board, laundry, &c.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Resident Medical Officer, unmarried, for six months. Salary at rate of £100 per annum.

MANCHESTER, COUNTY ASYLUM, Prestwich.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, attendance, and washing.

MANCHESTER, HULME DISPENSARY, Dale-street, Stretford-road.—House Surgeon. Salary £250 per annum, with apartments, attendance, &c.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Parkplace, Cheetham Hill-road.—House Surgeon. Salary £120 per annum, with apartments and board.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—House Physician and House Surgeon. Salary at rate of £60 per annum. Also Assistant House Physician and Two Assistant House Surgeons. All for six months. Salary at rate of £40 per annum, all with board and washing.

MIDDLESBROUGH, NORTH ORMESBY HOSPITAL.—House Surgeon. Salary £150 per annum, with board, washing, and attendance.

NEWCASTLE-UPON-TYNE, ROYAL VICTORIA INFIRMARY.—Four House Physicians, Four House Surgeons, Accident-room House Surgeon, House Surgeon to Aural and Ophthalmic Department, House Surgeon to Skin and Gynæcological Department, and House Surgeon to Out-patient Dressing Department.

NEW HOSPITAL FOR WOMEN, Euston-road, N.W.—Female House Physician, Two House Surgeons, and Obstetric Assistant. All with board, residence, and laundry. Also Assistant Pathologist. Also Resident Medical Officer at House of Recovery, New Barnet, for six months. Salary at rate of £60 per annum. Also Clinical Assistants for Monday and Saturday.

NORTHAMPTON GENERAL HOSPITAL.—House Surgeon. Salary £120 per annum, with apartments, board, washing, attendance, &c.

NORTHUMBERLAND, COUNTY OF.—Assistant School Medical Inspector. Salary £300 per annum.

OLDHAM COUNTY BOROUGH.—Assistant Schools Medical Officer. Salary £300 per annum.

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.—Honorary Dermatologist. Also Deputy Laryngologist.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—House Physician and House Surgeon for six months. Salary £100 per annum, with board, residence, and washing.

READING, ROYAL BERKSHIRE HOSPITAL.—House Surgeon for six months.

ROTHERHAM HOSPITAL.—Senior and Junior House Surgeons. Salaries £200 and £125 per annum respectively, with board, lodging, and washing.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—Female Senior and Junior Obstetric Assistants. Salary £75 and £50 per annum respectively. Each with board, residence, &c. Also Female Junior Anæsthetist (two days weekly) and Two Female Resident Medical Officers. With board, residence, &c.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C. —House Physician (Part-time). Salary at rate of £75 per annum, with meals.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Out-patient Surgical Officer for six months. Salary at rate of £50 per annum.

SALISBURY GENERAL INFIRMARY.—House Surgeon and Assistant House Surgeon, unmarried. Salary £100 and £75 per annum respectively, with apartments, board, lodging, and washing.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone-road, N.W.—Anæsthetist two half days weekly. Salary £15 per annum.

SHEFFIELD MUNICIPAL TUBERCULOSIS DISPENSARY.—Female Assistant Medical Officer. Salary £350 per annum.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Surgeon and Assistant House Physician.

SHEFFIELD ROYAL INFIRMARY.—House Surgeon and Assistant House Physician. Salary £100 per annum, with board and residence.

SHREWSBURY, ROYAL SALOP INFIRMARY.—House Physician. Salary at rate of £110 per annum, with board and apartments.

SOMERSET COUNTY COUNCIL.—Assistant Tuberculosis Officer. Salary £350 per annum.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Senior House Surgeon. Salary £150 per annum, with residence, board, and washing.

STAFFORD COUNTY MENTAL HOSPITAL.—Female Temporary Assistant Medical Officer. Salary £250 per annum, with board, apartments, and laundry.

STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY, Hartshill.—Resident Surgical Officer, unmarried. Salary £300 per annum. Also Two House Surgeons and One House Physician, unmarried. Salary in each case £150 per annum, all with board, residence, and laundry.

SWANSEA EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary £300 per annum.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—Senior House Surgeon. Salary £250 per annum, with board, lodging, and laundry.

VENTNOR, ISLE OF WIGHT, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST ON THE SEPARATE PRINCIPLE. —Assistant Resident Medical Officer, unmarried. Salary £150 per annum, with board, lodging, &c.

WARRINGTON INFIRMARY AND DISPENSARY.—Junior House Surgeon. Salary at rate of £120 per annum, with board, apartments, and laundry.

WARRINGTON, LORD DERBY WAR HOSPITAL.—Chief Resident Physician. Salary £1 3s. 6d. per day, with board, lodging, and washing. Also Resident Physician and Surgeon.

WELSH METROPOLITAN MILITARY HOSPITAL, Whitchurch, near Cardiff. —Chief Resident Surgeon and Chief Resident Physician. Salary £1 3s. 6d. a day, with board, lodging, &c.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.—House Physicians. Salary £120 and £100 per annum, with board, residence, and washing.

WEST HAM UNION.—Second Assistant Resident Medical Officer at Infirmary, Whipps Cross-road, Leytonstone, N.E. Salary £250 per annum. Also Deputy Medical Officer at Sick Home, 95, Forest-lane, Forest Gate, E. Salary £250 per annum. Also Female Assistant Medical Officer at Workhouse, Union-road, Leytonstone, N.E. Salary £140 per annum. All with usual residential allowances.

WHITEHAVEN AND WEST CUMBERLAND INFIRMARY.—House Surgeon. Salary £150 per annum, with board, lodging, and attendance.

WORCESTERSHIRE COUNTY COUNCIL EDUCATION COMMITTEE.—Female Temporary Assistant School Medical Officer. Salary £350 per annum.

YORK DISPENSARY.—Female Resident Medical Officer, unmarried. Salary £240 per annum, with board, lodging, and attendance.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of a vacancy for Certifying Surgeon under the Factory and Workshop Acts at Staindrop, in the county of Durham.

Births, Marriages, and Deaths.

BIRTHS.

APPLEYARD.—On April 14th, at 2, Marlborough-road, Bradford, the wife of William Appleyard, F.R.C.S. (Captain, 2nd 6th West Yorkshire Regiment), of a son.

BARNICOT.—On April 13th, at Queen-street, Hitchin, the wife of Joseph Barnicot, M.D., of a daughter.

DICK.—On April 13th, at Tadworth, Surrey, the wife of F. A. Dick, M.B., of a son.

KENNEDY.—On April 12th, at Priory-road, Wantage, Berks, the wife of W. D. Kennedy, M.B., of a daughter.

LEDWARD.—On April 16th, at Norton Way, Letchworth, Hertfordshire the wife of H. D. Ledward, M.B., of a daughter.

TEBBUTT.—On April 18th, at Belsize-park-gardens, Hampstead, the wife of E. S. Tebbutt, L.D.S., D.D.S., of a daughter.

TIVY.—On April 12th, to Dr. and Mrs. Cecil B. F. Tivy, "Lindthorpe," Brixham, South Devon, a daughter.

MARRIAGES.

COLLIER—LIVERSIDGE.—On April 17th, at St. Luke's, Chelsea, Walter Edgar Collier, M.R.C.S., L.R.C.P., to Kathleen May, third daughter of the late Jarratt Liversidge, of Ringley, Reigate.

FENN—SHUTTLEWORTH.—On April 14th, at St. Peter's Church, Belsize-park, N.W., Charles Edward Fenn, M.D., to Edith Elizabeth, only daughter of Dr. and Mrs. G. E. Shuttleworth, of Hampstead.

GARDNER—MILNE.—On April 17th, at St. George's Presbyterian Church, Southend-on-Sea, Thomas Gardner, M.D. Edin., to Muriel Rose, eldest daughter of Captain and Mrs. Oswald I. Milne, of Parkside, Chalkwell-gardens, Westcliff, Essex.

GARRY—MARR.—On April 14th, at St. Clare's, Sefton Park, Dr. Michael Garry, to Rita, only daughter of Edward L. Marr, of Grove House, Sefton Park, Liverpool.

HALL—MCCALLUM.—On April 15th, at All Saints', Margaret-street, W., Edward Wilson Hall, M.R.C.S. Eng., L.R.C.P. Lond., to Annie Maud, younger daughter of the late Colin McCallum, M.B., C.M. Edin., of Anstruther, Fife, N.B., and of Mrs. McCallum, of Lascelles-terrace, Eastbourne.

ILOTT—HODGE.—On April 14th, very quietly, at All Saints', Margaret-street, W., Dr. H. J. Ilott, of Bromley, to Norah Mildred Hodge, third daughter of Mr. Edward Hodge, of Exeter.

PULLING—GREY.—On April 8th, at the Church of St. Michael and All Angels, Sunninghill, John Bernard Pulling, M.B., B.S. Cantab., Faringdon, Berks, to Sybil Constance Grey, daughter of the late Mr. William Lewis Grey, of Pykara, Nilgiris, S. India.

STUART—SHELDON.—On April 10th, at St. Luke's Church, Kingston-on-Thames, Francis Wilson Stuart, M.D., M.Ch., to Constance Fanny, only daughter of Mr. and Mrs. A. Sheldon, Birchfields, Birmingham.

WRIGLEY—MITCHELL.—On April 17th, at the Parish Church, Llandulas, by the Rev. Canon Roberts, assisted by the Rev. J. W. Thomas, Frank Graham Wrigley, M.D., third son of the late Roscoe Wrigley, of Oldham, and Mrs. Wrigley, of Didsbury, Manchester, to Marjorie Mary, eldest daughter of the late John Mitchell and Mrs. Mitchell, of Edinburgh.

DEATHS.

BENDLE.—On Apr l 13th, at Sunnyside, Oldfield-road, Bath, James Huxtable Bendle, M.B., M.R.C.S., aged 40 years.

BOMFORD.—On April 12th, at St. Thomas's Home, London, Surgeon-General Sir Gerald Bomford, K.C.I.E., M.D., late Director-General, Indian Medical Service, aged 63 years.

DUNCAN.—On April 12th, at Oxford-road, Finsbury Park, N., Frederick Percy Duncan, M.R.C.S., L.R.C.P., in his 43rd year.

JOLLYE.—On April 16th, at 41, Nelson-road South, Great Yarmouth, Edward William Jollye, Surgeon, formerly of Donington, near Spalding, aged 81 years.

KAY.—On April 13th, at Worthing, William Kay, M.R.C.S., L.R.C.P., of Bentley, Hampshire, in his 63rd year.

TUNNICLIFFE.—On April 15th, suddenly, at Radlett, Edwin Thomas Mosse Tunnicliffe, M.R.C.S. Eng., aged 54 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births Marriages, and Deaths.

BOOKS, ETC., RECEIVED.

AMERICAN CLIMATOLOGICAL ASSOCIATION, Philadelphia.
Transactions for the Year 1914. Vol. XXX.

BALE, JOHN, SONS, AND DANIELSSON, LIMITED, London.
Defective Children. Edited by T. N. Kelynack, M.D. Price 7s. 6d. net.
Scheme for Dealing with Tuberculous Persons in the County of London: its Application to other Cities, with some Observations on the National Organisation of the Campaign against Tuberculosis. By D. Barty King, M.A., M.D. Edin., M.R.C.P. Lond. & Edin. With Foreword by Professor Sir William Osler, Bart., M.D., F.R.C.P., F.R.S. Price 5s. net.

CHURCHILL, J. AND A., London.
Malay Poisons and Charm Cures. By John D. Gimlette, M.R.C.S., L.R.C.P. Price 3s. 6d. net.

DENT, J. M. AND SONS, LIMITED, Bedford-street, Strand, London, W.C.
A Plea for the Thorough and Unbiassed Investigation of Christian Science and a Challenge to its Critics. By Charles Herman Lea. Second and revised edition. Price 1s. net.

HODDER AND STOUGHTON, London, New York, and Toronto.
The Way of the Red Cross. By E. Charles Vivian and J. E. Hodder Williams. Price 2s. 6d. net

INSTITUT D'ESTUDIS CATALANS, Palace de la Diputacio, Barcelona.
Treballs de la Societat de Biologia Any Primer. 1913. Publicats sota la Direcció de A. Pi Suñer. Price 10 ptes.

LIPPINCOTT, J. B., COMPANY, Philadelphia and London.
The Diseases of Children. Edited by Dr. M. Pfaundler and Dr. A. Schlossmann. English translation by Dr. H. L. K. Shaw and Dr. Linnæus La Fétra. With introduction by Dr. L. Emmett Holt. Vol. VII.: Diseases of the Eye and Disorders of Speech. Price 21s. net.

LIVINGSTONE, E. AND S., Edinburgh.
A Text-book of Medical Jurisprudence and Toxicology. By John Glaister, M.D., D.P.H. Cantab., F.R.S.E. Third edition. Price 15s. net.

NISBET, JAMES, AND CO., LIMITED, London.
Operative Treatment of Chronic Intestinal Stasis. By Sir W. Arbuthnot Lane, Bart., M.S., F.R.C.S. Third edition. Price 10s. 6d. net.

SAMPSON LOW, MARSTON, AND CO., London.
The Chronicles of the Imp: A Romance. By Jeffery Farnol. And an appreciation of the author and his work by Clement K. Shorter. Price 3s. 6d.

SCIENTIFIC PRESS, LIMITED, London.
The Nervous System. By Dr. Ash. Price 1s. net.
The Muscular System. By H. Burrows, F.R.C.S. Price 1s. net.

SMITH, ELDER, AND CO., London.
The Minor Horrors of War. By A. E. Shipley, Sc.D., F.R.S., Master of Christ's College, Cambridge. Price 1s. 6d. net.

STANFORD UNIVERSITY, California.
Introduction to the Study of the Endocrine Glands and Internal Secretions (Lane Medical Lectures, 1913). By Sir Edward Schäfer, Regius Professor of Physiology, Edinburgh University.

UNIVERSITY PRESS, Cambridge.
Zoology: an Elementary Text-book. By A. E. Shipley, Sc.D., Hon. D.Sc. (Princeton), F.R.S., and E. W. MacBride, M.A. Cantab., D.Sc. Lond., F.R.S. Third edition. Price 12s. 6d. net.

WHITTAKER AND CO., London.
Modern Illuminants and Illuminating Engineering. By Leon Gaster and J. S. Dow. Price 12s. 6d. net.

Notes, Short Comments, and Answers to Correspondents.

A HEALTHY BRITISH DEPENDENCY.

THE Cayman Islands, forming a dependency of the colony of Jamaica, are situated between the meridians 79° 44′ and 81° 26′ parallels of 19° 41′ and 19° 46′ N., and consist of three islands—Grand Cayman, Cayman Brac, and Little Cayman—with a total area of 225 square miles. They are said to have been discovered by Christopher Columbus and to have been originally a rendezvous for pirates. The principal town is Georgetown, in Grand Cayman. The government is administered by a Commissioner, Mr. A. C. Robinson, who in his report for 1913-14, just received at the Colonial Office, states that the islands are among the healthiest places in the world. There are no cases of illness attributable to climatic conditions. The weather is warm for the greater part of the year. The prevailing breeze is from the south-east from April until October, and the cool season begins with a change of the wind to the north and north-west in the early part of November. In the hot months the average temperature is 83° F. in the morning, 89° at midday, and 86° in the evening; in the cool months (November to March) it is 71° in the morning, 80° at midday, and 74° in the evening. A census taken in June, 1911, showed the total population of the islands to be 5564. Of these 2322 are white, 2211 coloured, and 1031 black. 3087 were returned as able to read and write, 749 as able to read only, and 1728, including children, as illiterate. There are many islanders who attach no importance whatsoever to the education of their children and who do not consider even reading or writing as in any way essential to a child's future welfare. During 1914 there were 195 births, 99 males and 96 females. Of these 160 were legitimate and 35 illegitimate. In the same period there were 39 deaths, 21 males and 18 females. There is a small building kept for the purpose of isolating infectious diseases, but it is not generally used. Government medical officers are appointed for the Lesser Islands and Grand Cayman, whose duty it is to visit all the outlying districts. The mosquito season begins in April and continues until September, when they begin to abate, and from November to February almost disappear. Householders adopt the method of lighting a smoke fire to ward off the attacks of these insects, which swarm in myriads and render life a torture to man and beast. A few houses are mosquito-screened. There are fortunately very few of the anopheline or malaria-transmitting variety. Although these islands are practically immune from the recognised mosquito-borne diseases—as malaria, yellow fever, and filariasis—the mosquito is nevertheless seriously detrimental to the health in other respects, the conditions of anæmia and general debility met with being attributed by the Government medical officer to the blood-sucking power of these insects. Swamps are found in various places, but as these are below the level of the sea they could only be drained by a large expenditure of money. So far as it is possible to ascertain, the people generally seem to display a more marked interest in hygiene, and, as this subject is taught in all the Government schools and particular importance attached to it, the rising generation may be taught to realise to the full the benefits to be derived from living in healthy surroundings.

RABIES AND QUARANTINE FOR DOGS.

FROM time to time the newspapers report cases in which persons are summoned for endeavouring to evade the restrictions placed by the Board of Agriculture upon the introduction into this country of dogs from abroad, and it is fairly well known that ladies often bring, or endeavour to bring, small pet dogs in by smuggling them under cloaks and other garments. Such cases would not be in the same class as that of a dog which recently was brought to England from Northern Nigeria and fortunately was not smuggled, but was duly placed in quarantine where it sickened and died, subsequent investigation by the officers of the Board of Agriculture showing that the cause of death was rabies. The loyal acquiescence of all in the salutary regulations referred to is a public duty.

THE DANGER OF CARTS AS PLATFORMS.

A HORSE and van are often hired by orators who wish to address the public from a convenient moving platform in the open air, but there is a danger in so doing when standing at the rear of the cart facing the public, without sufficient protection from the tailboard as a small parapet, and without careful attention to the horse's head. This week several public recruiting meetings have been

held in different parts of London, and one such meeting was addressed by a soldier supporting himself on two crutches, standing at the rear of a van. He called for one recruit to take his place in the ranks, and when one came forward there was clapping of hands. Simultaneously an electric tramcar passed, and probably the combined noises frightened the horse, which gave a jerk forward, with the consequence that the crippled soldier was thrown headlong on to the ground amidst the groans of the crowd. He might have been seriously hurt, but he was evidently plucky, for he rose again, and in a few minutes was assisted up and reoccupied his former dangerous position, although he was pale and evidently shaken.

WHISKY, ABSINTHE, AND BEER.

THE subject of "Drink and Prohibition" is now receiving much Government, public, and private attention. Whisky is the spirit chiefly consumed, perhaps, by the working classes. The "uisge beatha," "usque baugh," or "water of life," was originally known officially to the Government under the name of "aqua vitæ," and those who are interested in its history will find a few particulars in THE LANCET of Jan. 28th, 1905, p. 240, under the heading of "Definition of Whisky in the Olden Times," from which it will be seen that the Scotch did not fear their own product but did fear the admixture of nauseous foreign spirit as an adulteration. Before the Royal Commission on Whisky and other Potable Spirits, whisky was defined as "a spirit obtained by distillation from a mash of cereal grains saccharified by the diastase of malt," and no distinction was allowed between "pot-still" and "patent" spirit. Whisky is generally considered to be mild in effects compared with absinthe, which has lately been prohibited in France, but no whisky is mild which has not been well matured. It would certainly be of advantage that beer should take the place of whisky, but much beer is too strong. A light or lager beer is seemingly proposed to be brewed by direction of the Government and sold in this country, in place of the heavy beers. It is interesting to recall that by the 4th and 5th of Philip and Mary it was enacted that "No bere bruer to brewe nor sell to any typpler, or other person, any bere called doble doble bere, but only two sorts of bere—viz., best bere and small bere, upon forfeit of ye bere and cask." To understand this more fully it is necessary to recollect that the "typpler" was what we now call the "publican," and not the "constant toper" or the publican's frequent customer. The dangers of too strong beer have long been recognised, but it may not be easy to make a very light beer popular.

CHILDREN'S FRESH-AIR MISSION.

THE annual meeting of this mission will be held in Staple Inn Hall, Holborn, E.C. (by permission of the Institute of Actuaries), on Wednesday next, April 28th, at 4 P.M., when the Bishop of Islington will preside. The following speakers in support of the fund are announced: Alderman Sir W. H. Dunn, Miss Paget, Mr. W. Pett Ridge, and Mr. Ernest E. Wild, K.C.

A BELATED NOTIFICATION.

ON April 17th we received through the post from the Secretariat of the III. Internationaler Kongress für Gewerbekrankheiten, Vienna, the following notification:—

August, 1914.

DEAR SIR,—The International Congress for Occupational Diseases which had to take place between the 21th and 26th of September in Vienna, has to be given up on account of the state of war.—Yours faithfully,

(Signed) Dr. TELEKY (?)

The exact date in August is, like the signature, undecipherable. The card, however, is surprisingly fresh and new-looking considering the time that it has been *en route*.

A USEFUL ANTISEPTIC SWAB.

WITH the object of minimising as far as possible the effects of septic poisoning of wounds received on active service, Dr. Campbell Highet, honorary medical officer to the Worcester Voluntary Aid Detachment, has devised a useful swab for applying an antiseptic solution. A glass ampoule is wrapped in a pad of plain gauze about 3 inches in diameter, and of 8 to 16 layers. The gauze is gathered round the thin neck of the ampoule, where it is tied with thread after the whole has been wrapped in an impervious covering. The ampoule holds half a dram or more of a solution recommended by Mr. G. Lenthal Cheatle, C.V.O., C.B., in the *British Medical Journal* (vol. ii., 1914, p. 1006), consisting of 1 in 20 carbolic acid and 1 in 500 mercury perchloride in absolute alcohol coloured with rosaline, the latter acting as a mordant. For use the ampoule is fractured by a sharp blow from any hard object, the impervious covering (which prevents leakage in case the glass container is accidentally broken) torn away, and the surface of the wound brushed with the impregnated swab. The swabs, which cost 2½*d*. each, are made by Messrs. J. Richardson and Co., and their inexpensiveness, portability, and easy manipulation should commend their use.

THE PAY OF GERMAN MILITARY MEDICAL OFFICERS.

"THE rate of pay of German military medical officers may be of interest to our own medical officers," writes a frequent correspondent. "The following appear to be the rates, unless they have been altered in any way since the war began. Sanitätsinspekteure, M. 10,260; generalärzte (surgeon-generals), M. 8772; general-oberärzte (colonels) and oberstabsärzte (lieutenant-colonels), M. 6102 to M. 6552; stabsärzte (staff-surgeons), M. 3400 to M. 5100; oberärzte (surgeons) and assistenärzte (assistant surgeons), M. 1700 to M. 2400; and unterärzte (subordinates or orderlies), M. 745. These are annual salaries, but may be supplemented by special house allowance, lodging allowance, or horse allowance. A mark may be reckoned roughly as a shilling."

DIABETIC CLINICAL CHARTS.

Messrs. J. B. Lippincott Company, of John-street, Adelphi, London, W.C., have submitted to us a convenient form of clinical chart for permanently recording the essential facts in regard to the urine, &c., in diabetic cases, both in hospital and private practice. They are printed on good paper, measuring 11 by 8 inches, and sold in packages of 50 at the price of 2*s*. 6*d*.

A. S. G.—One of the best tests for blood in urine is that devised by Meyer. It contains phenolphthalein, grm. 2; caustic potash, grm. 20; and distilled water, grm. 100. Mix and raise to boiling-point, then add powdered zinc, grm. 10; maintain at boiling-point for five minutes. Shake up and filter rapidly as soon as decoloration takes place. Add 1 c.c. of the reagent to a small quantity of the urine to be tested, also a few drops of peroxide of hydrogen when, if blood be present, a reddish colour is produced which is absolutely characteristic. With regard to the presence of urobilin in urine, Florence's test is easy of application and reliable: pyridine, alcohol, and chloroform āā 50 grm., acetate of zinc 7·50 grm. Add to the suspected urine twice its volume of the reagent and set aside. If positive a very characteristic fluorescence is produced.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY.—Mr. H. Hartridge and Mr. A. V. Hill: The Transmission of Infra-red Rays by the Media of the Eye, the Transmission of Radiant Energy by Crookes's and other Glasses, and the Radiation from Various Light Sources (communicated by Mr. W. B. Hardy).—Mr. E. Beard and Mr. W. Cramer: Surface Tension and Ferment Action (communicated by Sir E. Schäfer).—Mr. W. Cramer: Surface Tension as a Factor controlling all Metabolism (communicated by Sir E. Schäfer).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY.

SECTION OF ODONTOLOGY (Hon. Secretaries—F. Coleman, F. R. Smyth): at 8 P.M.

Adjourned Discussion:

On Dr. Ewan Waller's paper, The Influence of the Thyroid Gland on Dental Caries (published in the March number of the Proceedings of the Section of Odontology).

Paper:

Dr. J. Sim Wallace: The Principles of Dietetics.

SECTION OF MEDICINE.—The Members of this Section are specially invited to attend the discussion on Dr. Waller's and Dr. Sim Wallace's papers (as above).

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.—The Members of this Section are specially invited to attend the discussion on Dr. Sim Wallace's paper (as above).

TUESDAY.

SECTION OF MEDICINE (Hon. Secretaries—John Fawcett, Charles R. Box): at 5.30 P.M.

Annual General Meeting.—Election of Officers and Council for Session 1915-1916.

Papers:

Dr. Arthur J. Hall: Notes on (1) A Case presenting Symptoms of Lymphatic Leukæmia of Acute Onset terminating in Complete Recovery; (2) Some Cases of Myelogenic Leukæmia.

Dr. F. Parkes Weber: An Instance of Long Quiescence of Leukæmia.

To be followed by a discussion on the Treatment of Leukæmia

WEDNESDAY.

SECTION OF PSYCHIATRY (Hon. Secretaries—Bernard Hart, G. F. Barham).

A Clinico-Anatomical Meeting will be held at the Pathological Laboratory, Claybury Asylum, at 3.30 P.M.

Dr. Armstrong-Jones will show some cases of Hypothyroidism.
Dr. F. W. Mott, F.R.S.: Microscopical Demonstration of Changes in the Central Nervous System in Hypothyroidism.
Dr. Kojima: The Examination of the Thyroid Gland in 100 Successive Cases of Death, with Special Reference to Hypothyroidism.
Dr. F. W. Mott, F.R.S.: Microscopical Demonstration of the Choroid Plexus in Relation to Lipoid Constituents of the Epithelial Cells.
Dr. Sano: Anatomical Investigations regarding Speech Functions.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

MONDAY.—8 P.M., Cantor Lecture:—Dr. D. Sommerville: Foodstuffs. (Lecture I.)

HUNTERIAN SOCIETY, Barbers' Hall, Monkwell-street, E.C.

WEDNESDAY.—8 30 P.M., Annual General Meeting. 9 P.M., Dr. P. Stewart: Demonstration of Injuries to the Brain sustained during the War (illustrated by lantern slides).—Dr. C. J. Thomas will give an account of his Experiences in Germany during the War.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

Museum Demonstrations for Advanced Students and Medical Practitioners:—

MONDAY.—Mr. Shattock: Specimens of Diseases of Arteries.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. Mr. B. Harman and Mr. Gibb: Diseases of the Eye.
TUESDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.
WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women. Mr. Gibb: Diseases of the Eye.
THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye.
FRIDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.
SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.
THURSDAY.—5.15 P.M., Clinical Lecture.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

TUESDAY.—3 P.M., Mr. B. Fletcher: The War on Belgian Architecture. (Lecture III.)
THURSDAY.—3 P.M., Mr. A. W. Porter: Advances in General Physics. (Lecture I.)
FRIDAY.—9 P.M., Prof. F. G. Donnan: Emulsions and Emulsification (Experimental).
SATURDAY.—3 P.M., Tyndall Lecture:—Prof. J. A. Fleming: Photo-Electricity (Experimental). (Lecture I.) 5 P.M., Annual Meeting.

ROYAL SANITARY INSTITUTE, 90, Buckingham Palace-road, S.W.

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For further particulars of the above Lectures, &c., see Advertisement Pages.

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April 15	30·014	S.W.	...	76	57	39	43	46	Fine
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